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BRANCH I.

PART I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Comparative Advantages of keeping Married and Unmarried Servants upon Farms; and the Policy of Encouraging the Increaſe of Cottages and Villages.

GENTLEMEN,

IF the following obſervations upon the comparative advantages and diſadvantages ariſing from keeping married and unmarried ſervants, and the policy of increaſing the number of cottages and villages, appear worthy of notice, you are at liberty to inſert them in your Magazine.

In ſome counties, the whole of the farm ſervants are married men, poſſeſſing cottages upon the farm; in others, the whole are unmarried; but, in a great proportion of caſes, a part are married, and a part ſingle. From a careful calculation of the ſums paid to each, it appears that a cottager and his family can be kept at an expence very little exceeding that required for a ſingle man. If this is admitted, (and every calculating farmer will be ſenſible of the juſtice of the remark), there will be little difficulty in proving, that the ſyſtem of keeping unmarried ſervants is not only a local, but a general evil; and affects, in a very material degree, both the wealth and population of the kingdom.

Unmarried ſervants, or what, in Scotland, are termed young men, are, for the moſt part (if not always) paid in money; and, having no family or furniture to incumber them, they have it in their power, without the ſmalleſt perſonal inconvenience, or even expence, to remove themſelves to a diſtant county, at the expiration of every term; and, as a great proportion of ſingle men, in that ſphere of life, are fond of rambling, partly from a love of novelty, and partly from a deſire of ſeeing the world, it is ſeldom they are found capable of reſiſting the temptation of trying their fortunes in other ſituations.

In thoſe counties where unmarried men only are kept, this is uniformly the caſe; moſt of them rambling from county to county; and will continue to do ſo, as long as the want of families prevents them from being influenced by thoſe local attachments which bind men even to the moſt uncomfortable ſituations, and while, at the ſame time, higher wages, and perhaps a better and a pleaſanter ſituation, ſolicit their acceptance.

The eaſe with which they can thus change their reſidence, not only renders their abode in the diſtrict uncertain, but begets in their mind a feeling, bordering upon indifference whether they pleaſe their maſter or not. With a few exceptions, their deportment is below mediocrity, and their work neglected, or, at beſt, careleſsly performed. Indeed, it cannot well be ſuppoſed, that a ſervant, acting under the impulſe of ſuch feelings, will entertain much ſolicitude for the intereſt of a maſter, upon whom he can ſcarcely be ſaid to depend. That deference and reſpect, and thoſe ideas of ſubordination which ſervants ought always to feel, are, in a great meaſure, loſt: nor is it, in the nature of things, poſſible to mend ſuch ſervants by reproof; as they know that, by removing to a ſhort diſtance, they will find ſufficient employment, while the maſter may have great difficulty in procuring another ſervant, in which, if he fail, his intereſt will ſuffer materially: On that account, many faults are paſſed over, that call loudly for reproof; and the ſervant, in conſequence of ſuch forbearance, is changed into a maſter.

Inſtances of this kind daily occur, where the maſter ſuſtains much loſs, and ſuffers a great deal of vexation, without having it in his power effectually to prevent it. This is the firſt evil that ariſes from the ſyſtem of keeping unmarried ſervants; and, when duly conſidered, it is not a ſmall one.—What follows, will be found ſtill worſe.

In

In ſituations where unmarried ſervants only are kept, the country is, for the moſt part, deſtitute both of cottages and villages: the ſupply of labourers is, on that account, always ſcanty and precarious. The labour of the men being barely adequate to the ſtationary work of the farm, ſuch as ploughing, ſowing, &c. the farmer's dependence, upon extraordinary occaſions, ſuch as hay and corn harveſt, reſts entirely upon ſtrangers; and, as that deſcription of people conſiſts chiefly of the hill country, or of wanderers, who have no fixed habitation, particular circumſtances will often operate to retard or prevent their annual viſits. On theſe accounts, the labour of the whole year is often in danger of being loſt, for want of hands to gather in the crop.

In ſome of the Engliſh counties, the hardſhip ariſing from this ſyſtem has been ſeverely felt, and the injudicious policy, to which it is owing, loudly complained of. In theſe parts, ſervants are engaged for ſix months only, to prevent them obtaining ſettlements, and thereby becoming burdenſome to the pariſh; and, if they remain twelve months in the ſame family, the rate of their wages is altered, for the ſame reaſon.

To a perſon who has lived long in a populous county, where villages are numerous, and where the cottage ſyſtem is encouraged, the appearance of many fertile tracts in England would convey no very pleaſing picture. In theſe ſituations, a conſiderable proportion of the arable lands are, from the want of hands, in a very imperfect ſtate of cultivation; no hand-weeding, hand-hoeing, or, in ſhort, any of thoſe operations connected with the *minutiæ* of a perfect huſbandry; an evil that is greatly felt during the growth of the crop, but much more ſo when it arrives at maturity, when, for the reaſon already mentioned, it is often unavoidably allowed to rot upon the ground.

Theſe are evils of conſiderable magnitude, and will certainly continue to operate, as long as the ſyſtem of keeping only unmarried ſervants is perſiſted in. The reſidence of ſuch ſervants being uncertain, they themſelves can ſcarcely be reckoned as making a part of the population; far leſs can any increaſe of it be expected from them, who are, in fact, doomed to baniſhment from the county, if they marry.

In looking over the Poor Laws of England, this will be found one of the principal cauſes of the increaſe in the Poor rates: indeed, it requires little argument to prove, that though

the reſtrictions already mentioned, in regard to cottages and villages, may eaſe the Poor rates in ſome particular places, yet, in others, and eſpecially in great towns, the expence of ſupporting the poor is greatly increaſed, by the numbers of deſtitute people who are driven into them for want of habitations elſewhere.

In ſituations, where villages are numerous, where the cottage ſyſtem is not reſtrained, and where the peaſantry are allowed to make ſettlements early in life, none of the inconveniences now mentioned are felt. In ſuch ſituations, the men are always equal to the ordinary labour of the diſtrict, and their wives and children are at hand for extraordinary occaſions. This is the immediate effect ariſing from keeping married ſervants and cottagers; but when, to the hands thus furniſhed from the families of the hinds and labourers, we add the numbers ſupplied by the populous villages, the inhabitants of which are at all times at command, little argument will be neceſſary to prove, that every reſtraint laid upon the cottage or village ſyſtem, muſt be detrimental to the agriculture and population of the kingdom, in the ſame proportion and degree that their encouragement is favourable to theſe important objects.

Along with the benefits derived by the agriculture of any diſtrict, from poſſeſſing a ſufficiency of hands for field operations, there are others to be enumerated, and thoſe, too, of conſiderable importance. Beſides the people employed in agriculture, mechanics (ſuch as *ſmiths*, *carpenters*, *weavers*, *ſhoemakers*, *taylors*, *bakers*) are required to ſupply them with various articles of neceſſity. Theſe, at the ſame time that they add to the population, will alſo keep a great deal of money in the diſtrict, which would otherwiſe be ſent out of it. By ſuch additional population, the conſumption of grain, and every other article of agricultural produce, is increaſed; and, in that way, a price, adequate to its value, obtained by the farmer.

Having ſaid thus much of the benefits ariſing from keeping married ſervants, and the policy of encouraging the cottage and village ſyſtem, it remains to ſtate ſome of the reaſons that operate to make married men better ſervants than ſingle men.

When a farm ſervant is married, and has a wife and family, together with the furniture of a houſe, he finds it a difficult matter to change his reſidence, or tranſport himſelf and family to any great diſtance. So circumſtanced, he does not readily

readily give way to every little temptation that may be held out to him, in point of income, as he finds this trifling advantage more than counterbalanced by the trouble and expence attending a removal.

A perſon, in ſuch a ſituation, becomes attached to the place from neceſſity; and is then, as ſtrictly ſpeaking, *adſcriptus glebæ*, as the vaſſals under the ancient feudal ſyſtem. Knowing the difficulty attending a removal to any great diſtance, his firſt wiſh naturally will be, to make the moſt of his preſent ſituation; and if he poſſeſſes common ſenſe, he will readily perceive, that he can only do ſo by ſerving his maſter with fidelity, and behaving in a reſpectful manner. To this, he will be prompted by every motive that can influence his conduct, namely, his own immediate comfort and advantage. The wiſh to eſtabliſh a good name in a place where he has an almoſt certain proſpect of ſpending the remainder of his days, and the deſire ſo natural, eſpecially amongſt people of that claſs, of ſeeing his children eſtabliſhed in the ſame neighbourhood, will enable him to make exertions, and perform duties, far beyond what the moſt rigorous law could require. Theſe circumſtances will always operate to make a married man not only a more uſeful ſervant, but will alſo have a conſiderable effect upon his morals.

In ſpeaking of unmarried ſervants, it has been obſerved with what eaſe they can tranſport themſelves from one place to another, owing partly to their having no family nor furniture, and partly to their being paid their wages in money. This laſt cauſe operates, alſo, to make them diſſipated and extravagant. Being, for the moſt part, boarded in their maſter's family, their dreſs requires no great proportion of their wages; a conſiderable ſum of courſe remains, which, in a great majority of caſes, is ſpent in diſſipation.

A married man, on the contrary, knowing that the ſole dependence of his wife and family reſts upon his income, not only makes greater exertions in the way of induſtry, but practiſes a more rigid economy; every part of his income being devoted to his family, and nothing waſted in diſſipation or extravagance. In that way, it can readily be explained, why the morals of the one ſhould be more correct than thoſe of the other. And though ſuch virtue is only of the negative kind, it is ſuch a one as ought at all times to be encouraged.

There is a prevalent idea, that, where married men only are kept, the farmer, along with the wages of the ſervant, is indirectly at the expence of ſupporting the wife and children. A careful examination of the ſubject, will at once deſtroy this opinion. It is certainly true, that, where married ſervants are kept, a much greater number of perſons are maintained upon the farm; and if it can be proved that this *extra* number are entirely idle, it is obvious that the wages of a hind will be inadequate to the ſupport of ſo many perſons. But if it be admitted, that the wives are induſtrious, and that the children, after they arrive at a certain age, contribute ſomething towards the ſupport of the family, and that no part of this groſs income is miſapplied, it will readily appear, that the man and his family may be ſupported with as little expence to the farmer, as an unmarried ſervant. This, certainly, is a better, as well as a more liberal way of accounting for the manner in which the families of cottagers are ſupported, than by reſorting to the unjuſt idea of their pilfering the produce of the farm to make up the deficiency.

There remains to be mentioned, another circumſtance, connected with the ſituation of the married man, which is not only favourable to his morals, but contributes to make his income go farther, that is, the manner in which his wages are paid. That deſcription of ſervants are almoſt univerſally paid in produce; the firſt part of which is applied to the wants of their families, and nothing is brought to the market but what they are unable to conſume. In that way, they are always plentifully ſupplied with the immediate neceſſaries of life; and, however ſtrong the temptation to expence on the part of the man may be, he finds it put out of his power. This mode of payment, while it prevents even the poſſibility of the ſervant or his family being in want, ſtrongly inculcates the neceſſity of ſuch payment being continued, and even extended; as, in every ſituation throughout the kingdom, where hinds or ſtationary ſervants are paid entirely in money, many of them acquire habits of expence, and their families are conſequently in want. On the contrary, where they are paid in produce, the ſituation of the labourer and his family is comfortable and happy.

Many other arguments might be adduced, to prove the advantages to the maſter from keeping married ſervants, the correctneſs of their morals, the reſpectful deportment and comfortable ſituation of that claſs of people, and the tendency of being ſettled in cottages and villages, and of having families,

lies, to quicken their exertions, and attach them to the diſtrict. It is to be hoped, however, that enough has been ſaid, to convince every intelligent proprietor and farmer, that no improved ſyſtem of huſbandry can be undertaken, or carried on to any extent, without a numerous peaſantry.

It remains to mention the effects of cottages and villages upon the commercial and manufacturing intereſts of the country, and upon the population and ſtrength of the kingdom. The ſame want of hands that retards agricultural improvements, muſt, in every inſtance, operate with double force upon manufactures and commerce. It has been admitted by every writer of eminence, who has treated upon the ſubject, that manufactures can never flouriſh in any country, unleſs articles of the firſt neceſſity are plenty and cheap: where that is the caſe, the workman can ſupport himſelf and family with comfort, upon a moderate income: in that way, labour becomes cheap, and the manufacturer is enabled to bring his commodities to market at a low price. An improved and extended agriculture muſt therefore neceſſarily precede the eſtabliſhment or the extenſion of manufactures, as it is only in ſituations where agriculture has made conſiderable progreſs, and the country is well peopled, that hands can be ſpared for other purpoſes; and theſe hands, it is obvious, muſt be drawn from the cottages and villages. To great towns we look in vain for aſſiſtance. The ſedentary lives of the parents, together with the unwholeſome air, ill treatment, and accidents to which the children are expoſed, kills two-thirds of them early in life; and of thoſe who ſurvive, nearly one-half are ſickly, deformed, and a tax upon ſociety. From ſuch places, therefore, no hands can be drawn, either for the labours of the field, or the loom; on the contrary, they require a new ſupply annually, to repair the loſs occaſioned by the numbers that are carried off by a ſedentary life, by living in dirty unwholeſome habitations, and by drunkenneſs and other pernicious habits peculiar to great towns, ſuch places being juſtly looked upon as drains to the population of every country.

To remedy an evil ſo extenſive, and to ſupply a waſte of the human ſpecies, much greater than has hitherto been imagined, the extenſion of the village and cottage ſyſtem preſents itſelf as an object well deſerving the attention of every perſon having an intereſt, either in the agricultural or commercial proſperity of their country. Theſe may be conſidered as a nurſery, and one, too, that can never fail. It ought therefore to be the buſineſs of Government, and of the landed inte-

reſt, to multiply them in every ſituation, where there is the ſmalleſt proſpect of their being uſeful. Let the population and internal improvement of the kingdom be made a primary object; and let every inferior conſideration of pariſh burdens and Poor-rates give way to it. With ſuch attention, Great Britain, under the influence of a mild and foſtering Government, may attain a degree of wealth and power, greatly beyond what has hitherto been known; and be enabled, not only to retain, but to increaſe, that reſpectable ſuperiority ſhe has ſo long held in the ſcale of nations. A. Z.

FOR THE FARMER'S MAGAZINE.

Deſcription of a Turnip-Feeding Byre, built by David Hunter, Eſq. of Blackneſs, at Eſkmount, in Forfarſhire, with a Plan annexed *.

It is now very generally underſtood, 'that the more cleanly and comfortably cattle are kept, and the cleaner and better the order in which their food is preſented to them, the better they will thrive; and, conſequently, the ſooner and heavier they will fatten.' With theſe views, and with the additional view of ſaving a greater proportion of the dung and urine of the cattle than is uſually done, ſo as to increaſe the quantity of manure as much as poſſible, the preſent byre has been conſtructed; which has been found, on trial, completely to anſwer the ends propoſed; and it is believed to be, in ſeveral reſpects, different from any byre hitherto erected.

The following is a plain, and, it is hoped, intelligible account of Mr H.'s byre, and of his method of feeding, &c. The byre conſiſts of two apartments: An inner apartment, or byre, for feeding the cattle; and an outer apartment, or barn, for containing the turnips and fodder.

To begin with the barn and its uſes.—At the proper ſeaſon, when the turnips are completely ripened, and the turnip feeding commences, the turnips are gathered together on the field in large quantities; and two or three men, with coarſe turnip knives, made from old ſcythes, &c. cut off the whole of the roots, carefully cleaning the turnips, at ſame time, from any earth which may be adhering to them. The turnips are then carted to the turnip-barn, the door of which is wide enough to allow the carts to back-in, and throw them down. Here the men, with their turnip knives, are again ready immediately

* Furniſhed at the requeſt of the Conductors, who beg to return their beſt acknowledgements for the valuable communication.

mediately to cut off the whole green tops (or ſhaws) of the turnips; and theſe green tops are immediately given to cows, young winterling cattle, ſheep, &c. who readily eat them when freſh. The turnips, now quite clean, are piled up in one end of the barn, like cannon-balls, and will keep in excellent order for months together: Should the Winter ſtorm ſet in, a ſmall quantity of clean dry ſtraw laid over them, will effectually preſerve them from being injured by the froſt, &c. The other end of the barn receives the ſtraw and litter, for the uſe of the byre.—The advantages, propoſed to be derived from this manner of treating the turnips, are,

1*ſt*, The preſervation of a great many of the beſt turnips, which, if allowed to remain on the field during Winter, are unavoidably ſpoiled by the effects of the weather, and the alternate operation of ſnow, rain, and froſt.

2*dly*, The green tops being cut off freſh and good, are immediately conſumed, in place of being entirely loſt, if allowed to remain on the field.

3*dly*, It ſaves much labour and trouble, both to men and horſes, to lay in a ſtock of turnips at once, in place of going to the field every day, whether good or bad; and when, as the fields are neceſſarily wet and ſoft, the horſes, carts, and harneſs, are ſeverely ſtrained, and the fields poached and cut up. And,

Laſtly, By having a couple of months ſupply of turnips in the barn, you are never under the neceſſity of uſing froſted turnips, which are often little better than lumps of ice. And even if you ſhould not incline, or find it convenient, to lay in ſo large a ſtock of turnips at once, ſtill you can take the advantage of any good freſh day, as it occurs, to add to your ſtock of turnips in the barn.

Next, as to the feeding byre.—At right angles to the turnip barn, ſtands the feeding byre, conſtructed as follows. At the diſtance of about $3\frac{1}{2}$ feet from the great ſide-wall of the byre, there are conſtructed on the ground, in a ſtraight line, ten troughs for feeding ten large cattle; theſe are of hewn pavement on all ſides, and at the bottom; and they are divided from each other by diviſions or bridges, likewiſe of hewn pavement. Theſe troughs are ſo conſtructed, that there is a ſmall and gradual declivity from the firſt or innermoſt, to the laſt and outermoſt one; and the bridges ſeparating them being made with a ſmall arch at bottom, a pail or bucket of water poured in at the uppermoſt, runs out at the undermoſt one, through a ſtone ſpout paſſing

paſſing through the wall; and a ſweep with a beſom or broom, carries off the whole remains of the turnips, &c. rendering the whole troughs perfectly clean and ſweet. The whole food of the cattle is thus kept perfectly clean at all times.

In a line with the feeding troughs, and immediately over them, runs a large ſtrong beam of wood from one end of the byre to the other; which is ſtrengthened by two ſtrong upright ſupporters to the roof, placed at equal diſtances from the ends of the byre; and the main beam is again ſubdivided by the cattle ſtakes and chains, ſo as to keep each of the ten oxen oppoſite to his own feeding trough and ſtall.

The $3\frac{1}{2}$ feet of ſpace betwixt the feeding troughs and outer wall of the byre, lighted at the far end by a glazed window, is the cattle-feeder's walk; who paſſes along it in front of the heads of the cattle; and, with a baſket, depoſits, before each of the cattle, the turnips into the feeding trough of each.

To prevent any of the cattle from choking on ſmall turnips, or pieces of large ones, as they are very apt to do, the chains at the ſtakes are contrived of ſuch a length, that no ox can raiſe his head too high when eating; for, in this way, it is obſerved, cattle are generally choked. However, in caſe it ſtill ſhould happen, that an ox chokes on a turnip, the cattle man, or feeder, is provided with a ramrod, made of a piece of ſtrong ſtiff rope, with a ſmall round poliſhed wooden head at the end of it; this he introduces into the mouth of the ox, and ſo gently knocks the turnip down his throat, without either difficulty or danger to the animal.

That the cattle-feeder may be always at hand to attend his cattle, a ſmall apartment, with a window, &c. in it, and in which his bed is placed, is conſtructed immediately off the corner of the byre; ſo that he is ready, even in the night-time, in caſe of any accident happening, to give aſſiſtance.

At the diſtance of about *ſix feet eight inches* from the feeding troughs, and parallel to them, is the dung groop and urine gutter, neatly and ſubſtantially built with hewn ſtone. Here, too, like the troughs, there is a gradual declivity, from the inner and upper to the outer and loweſt end; ſo that the moment the urine paſſes from the cattle, it runs to the loweſt end of the gutter, whence it is conveyed through the outer wall of the byre in a large ſtone ſpout, and depoſited

poſited in the *urinarium*, outſide of the wall. At this place, as marked on the plan, is a large incloſed ſpace occupied as a compoſt dung court: Here, all ſorts of ſtuff are collected for increaſing the manure; ſuch as, fat earth, cleanings of roads, ditches, ponds, &c. rotten vegetables, &c.; and the urine from the byre being cauſed to run over all theſe collected together, which is done very eaſily, by a couple of coarſe wooden ſpouts, moved backwards and forwards to the *urinarium*, at pleaſure, renders the whole maſs, in a ſhort time, a rich compoſt dunghill; and this is done by the urine alone, which in general is totally loſt. The dung of the byre, again, is cleaned out ſeveral times each day, at the two front doors of the byre, oppoſite to the groop, and depoſited in the dung court, marked on the plan; ſo that in this way, too, the byre is kept as clean as any ſtable, and the cattle as clean as race horſes. Along the edge of the dung court, a few low ſhades are conſtructed, in which young beaſts, ſheep, or ſwine, &c. are kept; and theſe conſume the refuſe and remains of the turnips from the great feeding byre.

In the ſide-wall of the byre, and oppoſite to the heads of the cattle, there are conſtructed three vents, or ventilators; theſe are at the diſtance of about two feet four inches from the ground in the inſide of the byre, and come out immediately under the eaſing of the ſlates on the outſide. The inſide openings of theſe are about thirteen inches in length, ſeven in breadth, and nine in depth, in the wall: And they ſerve two good purpoſes, *1ſt*, The breath of cattle being ſpecifically lighter than atmoſpheric air, the conſequence is, that, in moſt byres, the cattle are kept in a conſtant heat and ſweat; becauſe their breath and heat has no way to eſcape; whereas, by means of theſe vents, this noxious air is forced out at the vents, by the draught of air from the doors, &c.; and the cattle conſequently kept cool, and not overſweated. The other good conſequence ariſing from the vents, is, that the wood-work of the byre, and the roof in particular, is kept ſound and freſh, in place of being rotted, by being kept conſtantly damp by the breath and ſweat of the cattle.

In ſhort, it is hoped that this Plan of a Byre will be found to conduce very much to the health and cleanlineſs, and conſequently to the fattening of the cattle, to the increaſe of the manure, and to the eaſe with which both theſe objects may be accompliſhed; and that there is no part of it which is either unneceſſary, or in any way more than uſually expenſive.

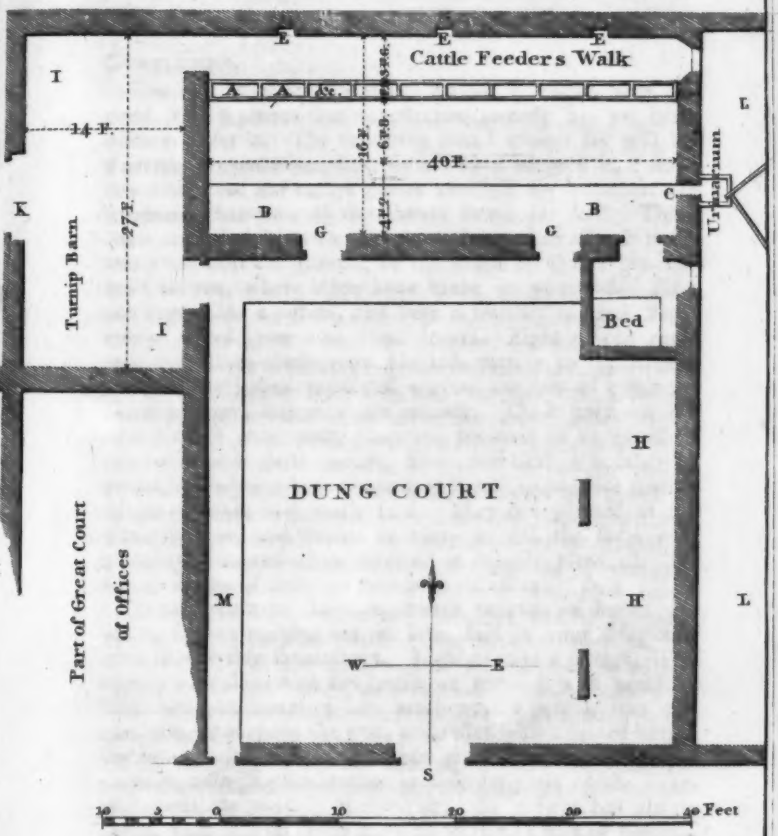
Abſtract

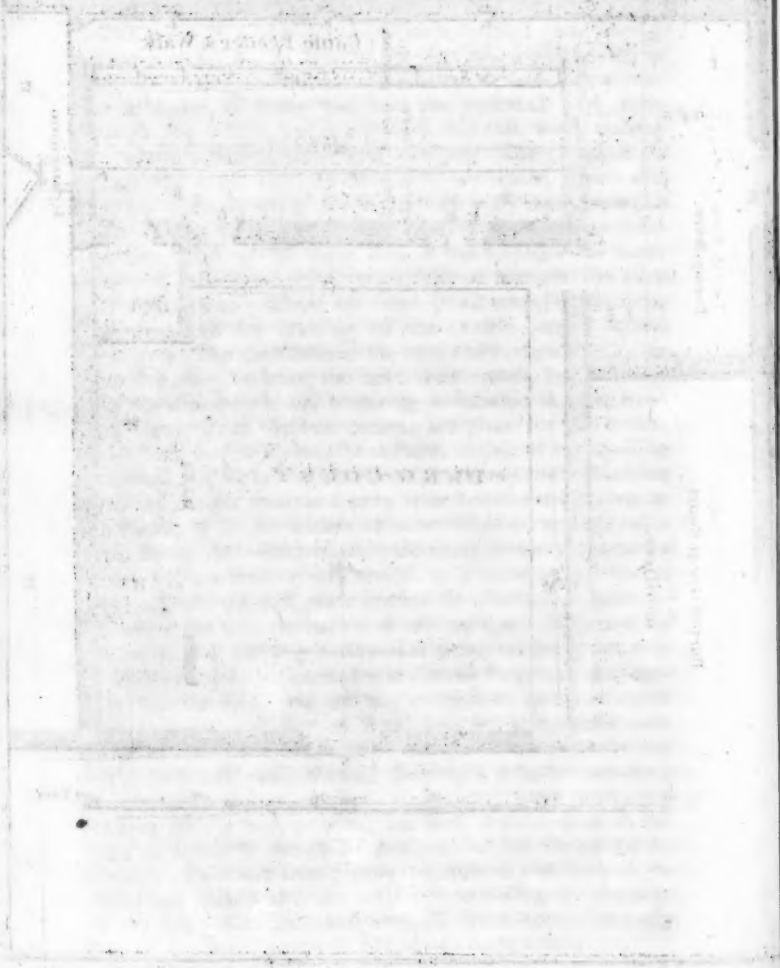
Abſtract Explanation of Mr Hunter's Turnip Feeding Byre at Eſkmount, and of the Plan annexed.

TEN cattle of a large ſize ſtand on one head, each having a ſtone trough, A, A, &c. to eat out of, which trough is made of hewn pavement, each diviſion arched below; ſo that a bucket of water put into the weſtmoſt one, runs through the whole, out at a hole in the eaſt wall, making the whole perfectly clean with a beſom. The groop, B B, behind the cattle receives their dung and water, which alſo runs out at an opening, C, in the eaſt wall, into a wooden ſpout D, which may be ſhifted as occaſion requires, to enrich any clean or fat earth that is laid through the Summer, and greatly increaſes the quantity of manure for next year's operations. There are three ſmall vents, E, E, E, in the north wall for drawing off the cattle's breath, which greatly preſerves the timber of the roof, and prevents the cattle from ſweating, or being too hot: their breath, being lighter than the atmoſpheric air, requiring ventilation to expel it.—Small door, F, in the eaſt corner, is a place for the cattleman's bed, ſo that he may be at hand, in caſe of need.—The two doors, G, G, to the ſouthward, is an eaſy conveyance for throwing out the dung and dirty litter into the court; where are ſhades, H H, for a ſcore of winterlings or young cattle, pigs, ſheep, &c.—Immediately adjoining to the weſt, is the ſhade, I I, for holding the turnips, and ſtraw or hay that is required; the door, K, wide enough to allow a cart to back-in, where the tops are cut from the turnips. By laying up the roots, and keeping a ſtore of them, in caſe of a ſtorm of froſt or ſnow, which makes it difficult to get at the turnips from the field, you are not obliged to give the cattle froſted turnips, which may ſometimes be little better than pieces of ice. The ſhaws are given to the cows or young ſtock, and firſt made uſe of. Beſides, it prevents poaching the land in very wet weather, or ſtraining your horſes, by drawing off the turnips when the field is wet.—Eaſt of the byre, is a roomy dunghill-ſtance, L L, for laying earth, where all the water from farm-yard, ſtables, and byre, is received and ſoaked up; the moiſture increaſing the quantity of manure. A raiſed cauſeway, M M, ranges along the front of the byre, and weſt ſide of the dung-court.

PLAN OF

Mr. Hunter's Feeding Byre at Eskmount





TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Plan for Preventing the Curl in Potatoes; with Remarks on the Comparative Expence of Horſes and Oxen.

GENTLEMEN,

THE curl in potatoes was laſt ſeaſon, I believe, very general, which proves that no effectual remedy has yet been diſcovered for it. The following plan I cannot ſay will be a certain preventative; but, ſince I have adopted it, I have never obſerved any curled plants amongſt my potatoes. It is, uſing what we call the Potato Beans for ſeed. Theſe *beans* are a dark brown excreſcence, larger than a horſe bean, and grow near the ground, on the haulm or ſhaw; generally, I believe, where it has been broke or wounded. They are ſhaped like a potato, and have a number of eyes, from one of which grow two ſmall leaves. Eight or ten years ago, ſeveral of theſe were planted, merely to try if they would grow: they produced a great number of common-ſized potatoes, but of a bad quality. Theſe potatoes, cut and planted next year, produced potatoes of an excellent quality, and in great plenty. Since that time, a number of beans have always been planted, ſufficient to produce enough of potatoes for next year's ſeed. They are planted at the ſame diſtance, and treated in every reſpect the ſame with common ſets, and their produce is equally plentiful. No other change of ſeed has ever been neceſſary.

With reſpect to the comparative expence of horſes and oxen, I think nothing has yet been ſaid in your Magazine that is perfectly ſatisfactory. Eight oxen in a plough, is equally ridiculous with five horſes on end. I wiſh much to ſee a proper account of how much work a *pair of oxen* will perform throughout the year, contraſted with a pair of horſes, by ſome perſon who has worked them in that manner. I have ſeen ſingle pairs worked in different parts of the country; and, on making the inquiry, the anſwer has always been, they will do *nearly* as much work as a pair of horſes.

Your correſpondent *R r r r*, makes the expence of a pair of horſes more than double that of a pair of oxen. Now, if a pair of oxen will perform only two thirds as much work as a pair of horſes, the advantages of oxen will be immenſe. I conceive that a pair of oxen may be uſed in many caſes to great

great advantage, allowing they do only half the work of a pair of horſes. For inſtance, a farm of 42 acres, managed according to the ſix courſe ſhift, requires a pair of horſes, 35 acres being in tillage. Now, a farm of 63 acres muſt have two ploughs, though there is only half work for one of them. Surely, here, a pair of oxen would be a ſaving of half the expence of a pair of horſes, or, according to *Rrrr*, 20l. 11s. 8d.—I am, Gentlemen,

Your very humble ſervant, K.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Account of Captain Freer's Improvements in the Neighbourhood of Perth.

GENTLEMEN, *Perth, 1. December* 1801.

WITH much ſurprize, in peruſing the Agricultural Reports from this county, inſerted in your uſeful and very valuable periodical publication, The Farmer's Magazine, I have not obſerved any notice taken of the extenſive improvements carried on by Captain Freer, in the immediate neighbourhood of this place, during the courſe of laſt Summer.

That gentleman, about the beginning of the month of June laſt, purchaſed thirty acres, and took a leaſe of forty-ſix acres from the town of Perth; making, together, ſeventy-ſix acres of ground, entirely covered with wood, moſtly of conſiderable age; many of the oak trees, in particular, being ninety years old.

He ſet to work vigorouſly at the time above mentioned, and, by manual labour alone, had trenched, and rendered arable, about fifty-five Scots, or ſeventy Engliſh acres of land, by the 1ſt of November laſt! A work of incredible toil, and of aſtoniſhing extent.

The Captain had frequently one hundred and forty people employed daily; and has, with a rapidity, unparalleled in this, or, I believe, any other country, cleared completely, from roots of old oak trees, ſtones, and underwood, the above extent of ground, in a ſpace of time ſo very ſhort, as to appear incredible; and, by this great and highly uſeful operation, has increaſed the value of the ſoil thus trenched, which, in its former ſtate, was not intrinſically worth one ſhilling, to three pounds *per* acre. If that man deſerves well of his country, who makes the wilderneſs a fruitful field,

field, he is certainly entitled to the praiſe of every individual who wiſhes well to Scotland.

I underſtand the Captain has already ſown a conſiderable quantity of wheat in this newly cleared ground, which has a promiſing appearance.

If you think a ſtatement of the above facts merits a place in your Magazine, it may be inſerted; and it may operate as a ſtimulus to others to copy an example ſo highly worthy of praiſe and imitation. Yours, &c.

CINCINNATUS.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Hints reſpecting the Conſtruction of Farm Offices.

GENTLEMEN,

I SEE an addreſs to the public, 13th April laſt, reſpecting the Farmer's Magazine No. 6. then to be publiſhed. In conſequence of which, I ſend you two or three hints anent the conſtruction of a farmer's offices. If they are thought worthy of a place in your valuable Magazine, good and well: but, if they have not your approbation, burn them; yet, on account of my good intentions, hold me excuſed.

I find fault with our farmers in Clydeſdale, for having their byres and ſtables without air-holes, for this reaſon, that cattle, kept in cloſe, and therefore warm houſes, are not ſo fit to go out and paſture in the open air, as they would be, were their byres and ſtables properly ventilated. This is ſo ſelf-evident, that it needs no illuſtration.

Their barns are built with few, ſome of them with no air-holes. What is the reaſon ſo many ſide-walls of barns, and ſide-walls only, crack, ſpread, and burſt out? Anſwered, The ſame reaſon that makes lime draw-kilns crack, ſpread, and burſt, namely, the ſwelling of the crop in the barn, or lime in the draw-kiln.

It is propoſed, as a remedy for the barn, that the ſide-walls, at the height of five or ſix feet from the ground, have a ſcarcement on the inſide, of two or three inches; and that after the crop is put in as high, then to lay, acroſs the barn, over the corn or crop, put up as high, and reſting upon the ſcarcement, ſuch a number of joiſts as may be found neceſſary to put another mow upon, and, at the ſame height, to have air-vents in the ſide-walls and gabels, either of a foot long, and

and two or three inches wide, and about four or five feet from each other; or, to prevent ſnow-drift, round holes, ſtraitening from four or five inches diameter, to two or three, ſo as a ſtople of wood may occaſionally be uſed; and the ſame number of air-holes about five feet above the before mentioned air-holes. *Nota*, In the barn, the crop ſhould be put up ſo as that the firſt mow ſhould be as broad as the length of one ſheaf or two ſheaves, heads and tails laid one upon the other, up to the propoſed height; and after that another mow, heads and tails; and ſo on, as often as convenient, from one ſide of the barn to the other ſide. By this means, every mow will leave ſome empty ſpaces to ſerve as funnels for carrying off the moiſture. If theſe hints pleaſe, you may put them in better dreſs. Farewell. A. B.

6th Nov. 1801.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Communication requeſting further Advice concerning the Deſtruction of the Gooſeberry Caterpillar.

GENTLEMEN,

I HAVE read with care, the very intelligent paper of A. Z. concerning the means of deſtroying the gooſeberry caterpillar, with which my crops of that excellent fruit are frequently injured; but as I cannot find that he points out any remedy applicable to my particular caſe, I am induced, through the channel of your uſeful Work, to beg his further advice.

On the 15th of Auguſt this year, a young race of caterpillars appeared on my gooſeberry and currant buſhes, which in a few days were ſtript of every leaf. Now, your correſpondent's method of laying quick lime at the bottom of the buſhes infected, and thereby deſtroying thoſe inſects that lurk among the leaves collected there on the ground in Spring, cannot avail me; becauſe, the leaves being already devoured, there are none that can be collected. Beſides, I generally dig the ground at the bottom of my buſhes in Winter, and I was inclined to think that this operation would have deſtroyed, as it buried all inſects of this ſort amongſt the leaves, that are accuſtomed to live on the ſurface.

NOVICE JUNIOR.

FOR

FOR THE FARMER'S MAGAZINE.

Method for the Management of Bees, practiſed by an able Farmer in the Province of Utrecht.

If you wiſh to aſſemble in one hive, two or three ſwarms of bees, begin, by ſtopping up the baſket, or hive, where you with to put them, with a four cornered piece of cloth, which you may draw above the opening, by putting the four corners, with the points, in the baſket. Then, with a pipe of tobacco, which you may put in by raiſing the cloth a little, blow the ſmoke into the hive, by taking the large end of the pipe in your mouth. When you think the bees are ſufficiently ſtupified by the ſmoke, uncover the baſket, and put upon it the one from which you wiſh to diſlodge the bees, and ſtrike it gently with your hand to make them fall; after which, you ſhould ſmoke the pipe again, that they may all breathe the ſame air; then cover up the baſket where they are, altogether, and ſet it upright. You ſhould leave the cloth for 24 hours, that the bees falling through giddineſs may not hurt themſelves. On taking away the cloth, you will find in it one of the queens, as the united ſwarms will not ſuffer more than one.

To take the honey from the hives without killing the bees, you muſt (when the buck wheat is in bloom) take the beſt furniſhed hives, and reverſe them, with the opening at top, upon which put an empty one, and ſhut up the place of junction, by tying them together with a piece of cloth. Then burn a piece of rag, well twiſted about the little hole, at the bottom. Repeat this four or five times, until you ſuppoſe that the ſmoke will have driven the bees from the bottom to the top, which will laſt for a quarter of an hour. You ſhould likewiſe give the hive ſome gentle blows with the palm of your hand, to make them go again to the top. This done, you ſhould place the new hive beſide it in a little hole you ſhould make in the place where the other was, and leave them thus together till the evening, that the bees, being tired of flying about, may have to ſeek their mother. This operation ſhould be done at the feaſt of St Lawrence, and ſhould begin in the morning.

When you find a hive in a bad ſtate, old and worn out, you may put the bees in a new hive, which has not enough of honey. This laſt will improve, but the other never.

When you find a hive in ſuch a bad ſtate, that you cannot well take the honey from it in Autumn, you may leave it as it is during the Winter, having taken away the bees in the manner above mentioned; and in the following Spring, you may put in it a ſmall ſwarm to finiſh it, this being the moſt profitable way. To preſerve thus the honey in the hive during the Winter, you ſhould ſmoke it with brimſtone, and ſhut it up well with a cloth, and do it over on the outſide of the hive with cows dung mixed with lime. You ſhould do the ſame thing to the outſide of the hives where you wiſh to preſerve the bees during the Winter, to keep them warm. You ſhould place them all beſide each other, on a plank, expoſed at noon to the ſhade of a hedge or ſome timber, with a little roof, covered with tiles. You muſt likewiſe cover each hive with ſome turf, and make round it, at the place where it reſts upon the plank, a plaſtering of lime and ſand, and make a little hole, which you ſhould firſt fill with lime, and then pierce with a nail, dipped in water, ſo as only to leave room for a bee. If, about this hole, there ſhould be any naſtineſs, or drops of a yellowiſh brown colour, it is a ſign of diſeaſe.

A hive, to be in a ſtate to paſs the Winter, ſhould weigh, baſket, honey, bees and all, twenty-five pounds at leaſt, and from thirty to forty at moſt. If it weighs more, it will be more profitable to take away the honey at St Lawrence.

If you ſhould have a very fine ſwarm of young bees, though it ſhould weigh fifty pounds, it will be better to keep them, as being the moſt profitable.

If you have a hive, which has not honey enough to paſs the Winter, you muſt pour into the baſket a compoſition of honey, boiled with water, (you muſt ſkim it as it boils), with which you may mix ſome drops of brandy. This will hinder other bees from coming to nouriſh themſelves with their proviſion.

In the Spring, we bring our bees to the rich ſoils, near the fields of rape or wild turnip. We afterwards tranſport them to the buck wheat; and laſtly to the heaths, which are always laſt to flower.

You muſt chooſe, whether to have the honey pure, or to preſerve the bees: the latter is the moſt profitable. Honey purifies

purifies itſelf by fermentation. We throw it all, pell-mell, into caſks, and the honey flows to the bottom.

To do all theſe operations, it is neceſſary to have a kind of covering of cloth, which covers the head and ſhoulders, and ties round the body, with a round opening, upheld by a little circle of wood before the face. This opening, about the ſize of a maſk, ſhould have ſome wires acroſs it, very tight; and, between the wires, you may introduce a pipe, to ſmoke while you meddle with the bees, in order to keep them off.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On the Gooſeberry and Cabbage Caterpillar, and Lime.

GENTLEMEN, *Edinburgh, 27th March,* 1801.

IN your Magazine, No. V. p. 66, one of your correſpondents deſires to be informed, not only as to the beſt method of uſing lime to lands, but alſo how gooſeberry buſhes may be ſaved from the ravages of the caterpillar.

As to the proper application of lime to lands, it is a ſubject of too much importance for me to preſume to treat of; and although I intend to make a few remarks on it, this is rather for the purpoſe of receiving, than of giving information; but as I have, for ſeveral years paſt, paid attention to prevent my gooſeberry and currant buſhes from being deſtroyed by caterpillar, I ſhall hazard ſome obſervations on that head.

I have tried the effect of tobacco juice, and of quicklime, both to buſhes and cabbages, to deſtroy theſe inſects, but without accompliſhing the end in view. I took every different method that ſolicitude could ſuggeſt, or ſedulous attention could execute.

Smoking with brimſtone hath indeed been lately recommended. This method I have alſo attempted, but without ſucceſs.

I applied quicklime in two ways. Firſt, I wetted the infected buſh or cabbage with a watering-pan, and then ſcattered on it powdered quicklime. Second, I put quicklime into a watering-pan, with which the infected buſh or plant was ſprinkled; but alſo with little effect.

Tobacco is noxious to all the inſect tribe. Gardeners ſcatter the ſnuff of it upon their hotbeds, and on their flowerpots, when their delicate plants become in danger of being deſtroyed by minute vermin, which completely anſwers the purpoſe. A pinch of ſnuff put on the back of a frog or toad, occaſions, to theſe reptiles, inſtant convulſions and death. One might therefore expect, that the application of tobacco or ſnuff to buſhes ſwarming with caterpillars, would be attended with a powerful effect. But, having applied it to my buſhes and cabbages in both ways, in which I tried the quicklime, I found it unavailing; for caterpillars, though eaſily cruſhed to death, are otherwiſe wonderfully tenacious of life.

Failing in theſe modes of application of thoſe remedies, I wiſhed to ſee what power they had to deſtroy caterpillars, when applied to them in the cloſeſt poſſible manner. With this view, I put a ſmall quantity of tobacco ſnuff into one plate, and ſome quicklime into another. Into theſe I put a number of caterpillars; but they having crawled off without being hurt, I mixed theſe articles with water. Out of this ſolution, the inſects alſo crawled, ſeemingly unhurt. I then prevented them from getting out of the liquor, and they expired. This was ſatisfactory evidence to me, that caterpillars cannot be deſtroyed by any ordinary application of tobacco or quicklime to a buſh on which they ſwarm.

I alſo tried how far the ſmoke of brimſtone is baneful to theſe inſects, by the following experiment.

I put a dozen of them on a plate. Over this I inverted a bowl, which had in it ſome burning brimſtone. This did not kill the caterpillars; which made me have recourſe to a more effectual method of confining the vapour. I placed a few of theſe inſects in a ſmall bottle, into which, having thruſt a bit of paper with inflamed ſulphur, I ſtopped the aperture of the bottle with a cork. The effect of the vapour then became too powerful for any animal life to reſiſt, and the inſects died. This experiment however convinced me, that the ſmoke of brimſtone cannot be effectually applied for exterminating caterpillars on buſhes.

Deſpairing of ſucceſs from any mode of general deſtruction of theſe vermin, I ſet ſervants and others to work, to pick them off, or rather to cruſh them on the buſhes. This effectual method, at firſt glance, may appear an unſurmountable labour; but let it be tried, and it will be found by no means ſo tedious or laborious as at firſt ſuſpected. Indeed, it is a matter of abſolute neceſſity, and, as ſuch, is practiſed by

by ſome gardeners, who know well, that if a ſwarm of caterpillars, on any one buſh, are not quickly deſtroyed, they will go over and ruin every buſh and berry in the garden. Not only will black currant buſhes, which they are not ſo fond of, become a prey to their voracity, but I have had experience of the ſame vermin adjourning to peach trees, and other fruit trees. Nor is there is any tree, though even diſtant, that they wont rob of its leaves, rather than they ſhould want food for their very voracious appetites. Neither is this all; for if theſe vermin are left to plunder, and to live, they will infallibly ſecure an abundant poſterity to deſtroy all your ſmall fruit of the enſuing and ſucceeding Summers.

Of the date of this paper, I perceived one of my gooſeberry buſhes with its lower branches almoſt deſtitute of leaves (for this is an early Spring); and, on more minute examination, I found it ſwarming with caterpillars, moſtly ſmall, and lurking, in crowds, beneath the larger branches, near the bottom of the buſh. I put on a pair of thick old gloves, and cruſhed them by hundreds; and, in ten or fifteen minutes, have, I think, ſufficiently cleaned the buſh, though it ought to be examined again with care, becauſe if they are allowed time to ſpread over a buſh, the trouble of deſtroying them one by one, is very great. This labour may indeed be ſomewhat abridged, by ſhaking well the infected buſh, and cruſhing with your foot thoſe caterpillars that fall to the ground.

I am informed that the Meſſrs Culley, theſe active and enterprizing farmers, on the ſame principle, make the caterpillars to be hand-picked from their extenſive crops of turnips.

Cabbages and greens may, in general, be preſerved from caterpillars, by plucking off the large undermoſt leaves (which may be given to cows) in the month of Auguſt, or when the common white butterflies begin to appear in numbers. Theſe butterflies lay their eggs, which produce the cabbage caterpillars, on the under ſide of the largeſt leaves of the cabbage and kail plants. There is alſo ſaid to be another remedy, which I cannot anſwer for. The learned Profeſſor of Natural Hiſtory in this Univerſity hath aſſured me, that ſowing beans among cabbages will greatly prevent the breeding of theſe worms. It is ſaid, the butterfly hath an antipathy at the flavour of beans.

The moths (*phalænæ groſſulariatæ* of Linnæus) from which the gooſeberry and currant caterpillars (which are the ſame) are bred, are ſmall, having yellow bodies, with many black ſpots, and their wings white, with yellow ſtreaks ſpotted with black. They appear in the month of July, in the evenings, and ought to be carefully killed by all attentive gardeners. They ſeldom fly far from the buſhes on which they depoſit their eggs. They live about twenty days, during which they (for many of the moth tribe have not even mouths) eat little or none. The eggs, which are yellow, are glued below the clefts, and under the larger arms near the bottom, and ſometimes on the leaves of the buſhes that are proper for ſerving the young progeny for food. One moth produces upwards of one hundred and fifty eggs. The young worms generally appear, I think, in Spring, but they are frequently hatched in Autumn. I have obſerved the young, in great numbers, devouring the leaves of the gooſeberry buſh, as early as the 15th of Auguſt, that is, about three weeks after the eggs are laid. They ſometimes eat up the embryo of the new leaves and flowers of the buſh in October, which renders any hope of fruit, for the enſuing year, abortive. Neither the froſt nor ſnow of Winter deſtroys them. I have taken particular notice of ſome of theſe caterpillars remaining on a currant buſh, without being affected with cold or hunger, from November till March. During Winter, and the early part of Spring, they lurk in cluſters below the clefts, and then is the time that they ought to be cruſhed.

At all times, till they are ready to go into the intermediate, or nymph ſtate, previous to their being changed into moths, they have, though ordinarily voracious, a vaſt power of living without food. If put into a box, even in Summer, they will not ſeem the worſe for being kept a month or two without meat.

Remarks on Lime.

Before concluding, I cannot help remarking, in anſwer ſo far to the firſt Query of your Correſpondent, that a great deal of lime is loſt, by laying it injudiciouſly on lands. This miſapplication muſt ever be the caſe, as long as even the beſt informed remain ſo much in the dark about the nature of the operation of lime on the ſoil, or its effect upon the

the vegetative principle. Perhaps the good effects of lime may be frequently obtained in ſome ſoils, with leſs quantities of it than are often uſed, particularly in the caſe of light ſoils. In ſome of the dry open ſoils, in Roxburgh and Berwickſhires, fifteen or twenty bolls of lime ſhells to an acre, are ſaid to be uſed with as great effect, as ſixty or eighty bolls when laid on an equal extent of ſuch ground, perhaps raſhly, in other parts of the country, particularly in the Lothians and Northumberland. Further, if it were previouſly aſcertained what proportion of calcareous earth is in the ſoil, before the application of lime, it would be known, with ſome better degree of probability, whether lime will be of any advantage to ſuch ground, and how much is requiſite. For it ſeems to be generally agreed, that ſome ſoils that are previouſly ſaturated with calcareous matters, either mechanically by the hand of man, or naturally, by being full of marl or the remains of ſea ſhells, are not benefited, and, ſome even affirm, are hurt, by applications of lime. Likewiſe, there are ſome other ſoils, on which it is ſaid lime has not any power of increaſing their vegetative powers. This laſt poſition is indeed doubted by ſome farmers of the greateſt experience; who ſay, that if the advantage of liming is not ſeen on ſuch ſoils while in tillage, it will certainly be found while they are in paſture, and after they are taken up for tillage again. They ſay, lime foſters the beſt and ſweeteſt graſſes; and that, of conſequence, cattle eat well-limed lands barer than other lands. It might be accurately aſcertained what the nature of theſe laſt mentioned ſoils, that are alleged not to be benefited by lime, is. If they are run out or exhauſted ſoils only, by overcropping with corn, and not exhauſted by overcropping after calcareous manures, but deficient in chalk, this would lead to concluſions (as to the principles directing the application of lime) ſuch as theſe perhaps, that ſome of the matters ſupplied by dung, by which I mean all decayed organized ſubſtances, along with a ſufficiency of water, are their more eſſential food, as dung can, of itſelf, perhaps in all caſes, produce luxuriant vegetation; and that lime may be chiefly advantageous in a certain proportion, either as a neceſſary and conſtituent part of every good ſoil, being found, more or leſs, in the compoſition of every plant, along with the other primitive earths of every ſoil, *viz.* clay and ſand, or as acting on other ſubſtances in the ſoil.

Magneſia is found in ſome limeſtones. It is ſaid to be poiſonous * to vegetables; and hence ſome limes are thought to be hurtful to ſoils. This may be eaſily aſcertained. I think, a ſet of well-contrived and accurate experiments are yet much needed, in regard to many alleged facts about the operation of lime on lands. I would preſume, alſo, to ſuggeſt, that before a very expenſive liming is undertaken, the farmer might try the effect of different quantities of lime, and perhaps alſo of different limes, upon a portion of the ſoil propoſed to be limed, in pots, in which different grains may be put to vegetate. A. S.

P. S. Since writing the above, I have ſeen the receipt for deſtroying gooſeberry caterpillars, which obtained a ten-guinea premium from the Highland Society, as ſtated in your Magazine of April 1801; and I have repeatedly tried it, in preſence of a friend, with the utmoſt care, but, I am truly ſorry to declare, without any effect. If tobacco juice had not the power to kill theſe inſects by itſelf, as ſtated in my former experiments, I could hardly, indeed, expect any aſſiſtance from the addition of alum. After trying the mixture, in the exact proportion and way recommended, upon an infected buſh, without perceiving that the caterpillars were much moved by it, I put a dozen of them into a plate, with ſome of the juice in it; and, after a quarter of an hour, the caterpillars were ſeen walking off the plate.

I have not tried Colonel Johne's contrivance, recommended by your Correſpondent P. H., becauſe I think my own way is eaſier; and becauſe, if my experiments formerly mentioned are accurate, Colonel Johne's method muſt frequently either fail, or deſtroy the buſh; and I conſider the vapour of tobacco can be no important addition to that of ſulphur. A. S.

TO

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* *Note by the Conductors.*

The idea of magneſia being hurtful to vegetation, is very ill founded. It is one of the mildeſt abſorbents with which we are acquainted; and upon particular ſoils that are infeſted with wild ſorrel, the application of it is an immediate remedy, eſpecially upon light, dry, ſoft lands: Indeed, in no ſituation can it be hurtful. The idea of particular kinds of lime being hurtful, is equally void of foundation. We have carefully analyzed many different kinds of limeſtone; and the only difference we have been able to obſerve, conſiſts in their having a greater or leſs proportion of alloy, ſuch as *ſand, clay,* &c.; but in no inſtance have met with limeſtone that contained any thing hurtful to vegetation.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Observations on the Disadvantage and Loss attending a fixed Rotation of Crops.

GENTLEMEN,

In a publication like your Magazine, where such a variety of subjects must be treated of; where soil and climate differ so very much; and where situation also comes in for a very large proportion of consideration; it is no wonder that there should also appear many different opinions, perhaps very much founded upon truth; although such, in one case, may be very inapplicable to those of another description, where any or most of the above happen to be different. It is not to be feared, but the good sense of the occupiers of land will generally discriminate what makes for their situation; and, in this way, there can be no great danger of being mistaken. Besides, should a farmer find any new improvement, properly recommended, with which he is unacquainted, he has only to make an experiment; and he will soon be able to ascertain, whether that improvement can be done to advantage by himself, with his soil, his climate, or local situation.

The case is very different, where a tenant is denied the exercise of his own judgement, and tied down to certain rotations, perhaps more expensive than profitable; and from which he cannot deviate one article, without being subjected to the pains and penalties of the law. See J. W.'s Letter, Tack, and Rotation Table, No. 2. pages 12, &c.

As this gentleman has very probably offered his best advice for the improvement of the west part of the country, and for ameliorating the condition of the tenants, who he describes to be, by hard labour and straitened circumstances, callous to every proper idea of amending matters themselves; in this he is entitled to praise, as every man must be, who contributes his mite for the benefit of society, and the good of his country. It is therefore to rectify his mistakes, to inform him, and all such who have a mind to do well, but know not the proper way of doing it, that I here suggest methods far more likely to obtain the end: And this I shall do, by comparing the mode of management, adopted by the farmers,

farmers, as he deſcribes it, with that ſuggeſted by him in the table: 2*d*, By ſhowing, in ſeveral inſtances, the difficulties that attend laying down any fixed rotation for the tenant by the heritor and his factor: And, *laſtly*, By recommending a plan of management, which has already ſucceeded, and generally will be found, in all time coming, to anſwer the end; namely, to improve the land, and better the condition of the tenants. Should this interfere with the intelligent farmer, who has already promiſed his remarks upon the foreſaid papers, I can ſee no manner of inconveniency ariſing from that, as I am convinced this is a ſubject which ought to be taken up in every poſſible point of view, that gentlemen may be enabled to form their ideas upon it with the greater freedom and liberality: And, as it brings ſeveral leading queries in the Magazine under review, I ſhall take the liberty to proceed.

Firſt, then, the weſt country farmers break up their ley ground, after being limed, for oats: After this crop, oats again: Next year, bear or oats, as the ground will bear, with all the dung they have; and, along with this crop, graſs ſeeds: Fourth year, hay: Then four or ſeven years in paſture. By this rotation, the ſimpleſt and leaſt expenſive poſſible, they have, in eighteen years, the ſpace allotted for the tack, 54 fields in crop. By the table there are 46, and very different as to each year. How much difference of grain will there be by the two rotations? And upon which ſide will the difference fall? Theſe queries may, to many, ſeem ſurpriſing; but they have only to recollect, that, in both caſes, the ley ground is in good order when broke up for oats; and although the firſt crop after the fallowed ley ground, will exceed, in quantity, the firſt crop of the ley ground that had not been fallowed, the ſecond crop, upon the ley ground that had not been fallowed, will be equal, if it does not exceed, any of the crops after the fallow. Upon the third crop, with the dung, there can be little difference, as the land being ſo much in graſs, it will be equally clean, or very nearly ſo, as that which is fallowed. And as there are eight more fields in crop in this, than by the table, I apprehend that this is more than equal to the difference, if there was any before, in point of grain. Again, by the fallow, the graſs crops muſt be very much improven: But as there is one of the fields, or nine-parts of leſs ground in graſs yearly, the fallowed ſyſtem has this deficiency to make up, before it exceeds the other ſyſtem, as a profit to the farmer;

farmer: And we can ſcarcely ſuppoſe that it will do much more. This ſcarcely leaves the fallow potatoes, turnip, or peas crop, which, at an average by the table, is one and one-half, or nine parts of the brakes, to ſuſtain the difference of expence, pay a higher rent, and maintain the tenants better.

But although I have thus compared the two ſyſtems of management, (and, I hope, candidly), being perfectly acquainted with both, I would not be underſtood as arguing againſt improvements; neither as attempting to juſtify people ſo very blameable, who exclude fallow or Summer dreſſing from their plan of management altogether. Where, the farms being divided and ſubdivided with ditch and hedge, they have not ſtraightened the ridges within them; this muſt appear exceedingly awkward, and is ſufficient to juſtify every man, who ſees it, to condemn the operator. It cannot be accounted for, in any way that I can conceive, except one, viz. that theſe tenants apprehend a great loſs in levelling the ridges, ſo as they can be ſtraightened; and the very leaſt trial will convince them, that altering or ſtraightening the ridges, without fallow or a Summer dreſſing, is a very loſing game. To correct this error, therefore, requires only to convince them of any method by which they can ſtraighten their land to a profit, or, at leaſt, without ſuſtaining any loſs. Now, as far as that can be obtained, is, by wearing down the high ridges with the preceding crops, ſo as too much be not left to the fallow. It is by turning, at leaſt, one field into turnip or fallow every year, until the whole is gone over. For, as the land is ploughed and harrowed over and over in all directions, until it is brought to a cloſe fine mould, the ridges may then be laid off juſt as one pleaſes, without any loſs. But, in ſtraightening, without this previous operation, the loſs cannot be calculated. The advantages are obvious to every man. Theſe are, (beſides the look of the fields, which is very gratifying to every eye), that the ſame ground is more eaſily ploughed, to far better purpoſe, and done in much leſs time. It is ſown with much leſs ſeed, of whatever kind. The extent of the ground, upon one or more ridges, is inſtantly known, by which one knows exactly what proportion he gives it. In ſhort, a certain regularity attends them in every operation.

Now, ſhould this point be gained; ſhould the judgment of the tenants be ſo far rectified, as a beginning was once introduced into their ſyſtem; there is little fear that the after management would not go on to the beſt account in this way,

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far more eaſily and ſmoothly, than by the reſtrictive covenant; the objections to which I am next to point out.

1*ſt*, It is almoſt impoſſible for the heritor, or his factor, to lay down ſuch a plan as is not capable of many improvements, which improvements are totally ſet aſide by the reſtrictive covenant. It has been the wiſh and conſtant practice of many gentlemen, to have the tenants bound, by their tacks, to certain regulations, or rotation of crops; and it is only requiſite to read over many of the preſent tacks, to ſee how abſurd theſe are, and how far inferior to the ſyſtem adopted by the tenants themſelves. It muſt be acknowledged, to the honour of the proprietors, that, when this has been the caſe, few faults have been found by them anent the management. But, even in this view, the reſtrictive covenant was of no uſe; and, had it been ſtrenuouſly inſiſted upon, would have been of very great prejudice to the improvements already obtained.

2*dly*, In laying down a plan of management for farms, it is often impracticable to have the whole ſubjected to the ſame rotation. We find, upon almoſt every farm, ſome part of it very good ground, ſome of it indifferent, and ſome exceedingly poor. Now, I think it muſt be obvious to every farmer, at leaſt, that this laſt kind of land can ſcarcely, by any cultivation, be brought to carry crops that can be depended upon, either of wheat, barley, or hay. And ſhould it be inſiſted upon, that this come in courſe with the firſt, the tenant, with all poſſible exertions upon his part, may be ruined. For which cauſe, a man of judgement will form a plan for the one kind, by itſelf; and another for the other kind, by itſelf; alſo ſuiting each to their reſpective uſefulneſs.

3*dly*, In laying down a plan of management, or rotation of crops upon farms where the ground is tolerably equal, and can be divided into a ſufficient number of breaks, whether incloſed or not, it would often be found neceſſary, to throw one or two of theſe breaks out of the rotation altogether, to lye in graſs, and be ready, as the judgment of the farmer might direct, to be broke up occaſionally, in order to relieve ſome of thoſe breaks that may tire under the friction of the plough. That ſuch things happen, and that not very ſeldom, is perfectly known to all experimental farmers, particularly where the rotation does not admit of many years in graſs, and where one or more crops of hay are taken.

4*thly*, The reſtrictive covenant has not hitherto contributed, in all my obſervation, to one article of the improvement which

which the country has yet attained. What a man is obliged to do, he, no doubt, will perform; but if he cannot see his own interest in the doing of it, or if he even suspect that it is a loss to himself, it is very easy to judge how the business will be performed. This brings to mind what I once saw upon one of the best farms in this county, where the tenant had been bound to have turnip in his rotation. When I saw the field, the turnips were in the rough blade, and might have been within ten days of being ready for the hoe. They were sown in drills upon the furrows, which seed-furrow had been given by a Scots plough of the old form, drawn by ten or twelve oxen, deep and broad, without any great degree of previous dressing. One could have counted every furrow in the whole field (12 acres) very distinctly, by the seam of grass that came up betwixt each of them.

5thly, It is sometimes found, that from a very droughty Summer, a severe Winter, or perhaps from bad seed, that the grass upon a very fine field may partially or wholly fail. What is to be done with it? By the restrictive covenant, it must be there, if it should not be worth half the rent, until its time comes to return to cultivation. On the contrary, a farmer would take it up in some way or other, renew the grass, cure it of its bleak appearance, and restore its usefulness. This, no doubt, increases the labour, and perhaps may take off some of the manure from other fields; but it also exercises the ingenuity of the farmer, to find expedients; and his activity in carrying them into execution, and his interest being so much at stake, he will scarcely think all this any hardship.

6thly, The last article I shall mention, that will form a prominent feature in all proper rotations, is this, that there ought to be an equal extent of ground sown in wheat crops every year; that is, taking in oats, barley, and wheat, altogether, for said crops. When farms are not improven, and the tenant is breaking up and forcing in moor and barren ground, this is not altogether attainable. But it will be the aim of every good farmer to come as near it as possible, knowing that it is attended with many advantages; such as, that it raises nearly the same quantity of manure, maintains nearly the same stock of cattle, brings nearly the same amount of grain to market, is justly calculated to the labouring strength, and thereby the green crops, such as fallows, turnips, potatoes, &c. are got exactly in proportion to the extent of the cultivation, without being so extensive and burdensome in

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one year, that juſtice cannot be done to it; or ſo ſmall in another, that there is not full employment for the labouring ſtrength.

It is paſt a doubt, that every farmer, whether good or bad, knowing or ignorant, will, to the utmoſt of his power, do juſtice to his ground during all the firſt part of his leaſe; but when that comes near the end, he very often will not: It is therefore, then, and then only, that reſtrictions are neceſſary. In order to make this matter as equal as may be, and as beneficial to all concerned, there ought to be a certain extent of land mentioned in the tack, condeſcended upon by the contracting parties, to be left in graſs, laid out in good order, that is, after turnip or fallow. If the iſſue of the leaſe is at Martinmas, the occupier has the benefit of the laſt year himſelf. But if at Whitſunday, as he cannot have the graſs in the ſame way, he ought to have it in his power to ſell the crop, by private bargain, by public roup, or arbitration, as he pleaſes, and that by a day fixed, that ſo his ſucceſſor may have it in his power to take it if he inclines. This will get more juſtice done to the graſs field or fields, than any other way; as, the better it is laid out, it will bring ſo much the more value.

It will be obſerved, that I have all along ſuppoſed the tenants perfectly capable to conduct their own matters; I have alſo ſuppoſed the farms as they generally are, that is, as conſiſting of hill and dale, of ſoils good and bad. There are ſome farms ſo compact, and the ſoil over the whole ſo equal, as to require little conſideration to lay down rules for their management, with a little latitude to the occupier. But theſe, or even thoſe ſoils which are ſo deep and ſtrong, as to admit of being regularly fallowed, and require to be little in graſs, being of the feweſt number, and perfectly underſtood, comes not within my preſent ſpeculation.

That ſuch farmers may be obtained, and the rules and regulations moſt calculated for the improvement of the country, was the laſt thing I propoſed to inveſtigate. And however difficult that may appear, as it will be acknowledged by all, that improvements have advanced very rapidly, for twenty or thirty years paſt, it only requires a minute inveſtigation of the means that have been uſed to bring them to their preſent bearing, to know preciſely what will carry them forward in the time to come. It is not a very diſtant period ſince improvements were at all known in Scotland. It is made a queſtion, has it come moſt by proprietors or tenants? Although this is not very material,

rial, it must be decided, that the proprietors introduced it. As they were superior in education; as they were going more abroad, and from home, they had opportunities of observing what was done in other places and countries. Possessed of talents, perfectly equal to the making of useful observations, and dispositions, fully disposed to turn them to the benefit of their country, they set forward in the work with heart and hand; they recommended the thing to all, both by precept and example. But improvements being once introduced and known, like a machine which a mechanic had invented, and for which he obtained a patent, other workmen made improvements upon it, and broke the patent. So have succeeding improvers exceeded the first; and so, it is to be hoped, succeeding ones will exceed the present.

But as the knowledge of these matters, as well as the practice of them, is only progressive; as it is evident, that the whole lump is not yet leavened; if the indulgent hand is nevertheless withdrawn, it must be attended with very bad consequences to all concerned.

It was long before the advice, or even the example of the proprietors, had much effect in arousing the tenants; as these moved in so high a sphere; as the improvements were attended with such additional labour; as it cut up some of the principal prejudices of the farmers, anent destroying the ground by frequent ploughings; and, as it brought on such expences, as were only fit to be supported by heritors.

The improvement of particular farms by an overseer, and setting the same to the man who had improven it, was of far more consequence; as this was more on a level with other people; as there was more access to see it, and to converse with the overseer or farmer; and the benefit arising from the improvement, was easily seen and known by all around.

Individual tenants fell into the new tract; some of them carried their improvements as far, or farther, than even the former. This made a new circle; and others, seeing them successful, were still the more induced to imitate their example. Farmers sons were sent here and there, to study the art with those that were judged the greatest proficients in the science. From these beginnings, very beneficial consequences have arisen to all concerned.

But something more was yet wanted to carry forward this great undertaking. It was instantly observed, that this new system not only required greater efforts of industry, but also a far greater capital. It was also observed, that, conform

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to the capital judiciouſly expended, the farm would be of ſo much the more value: of courſe, thoſe who had acquired the knowledge, and were in poſſeſſion of the neceſſary ſupply, would not embark in the buſineſs, without ſuch a length of leaſe as ſhould indemnify them for their trouble and expences. To the honour of many proprietors, this condition was in many inſtances complied with; and I think that no man will require ſpectacles, to ſee the mighty difference there is in the ſtate of agriculture, where theſe have been obtained, over that where ſuch length of leaſes has been denied.

In many caſes, leaſes were not granted to reſiding tenants, until they had made very conſiderable advances in the improvement of their farms. This forms another very ſtriking feature in the way, and equally to the credit of the gentlemen proprietors; as, in all theſe caſes, the tenant enjoyed the countenance, and placed full confidence in the heritors, that they would not take all the advantages againſt them which they could derive, or turn them out upon trifling or immaterial pretences, but, on the contrary, would treat them as the more deſerving, and thereby afford them encouragement to go forward. On the other part, it has been the caſe, and the thing will remain unalterable, that where the tenants can place little, if any, confidence in the heritors, their improvements, except upon ſure leaſes, will be few and feeble, whatever engagements, as to that, they may be brought under by their tacks.

It is unneceſſary to point out every thing which has either forwarded or retarded improvements: theſe are very generally obſerved in all the county reports, more or leſs; and he who runs may read. If land is of a good quality; if it is favourably ſituated for markets and manure; perhaps the expence of improving ſuch a farm will not be very great; and, for certain, the time of doing it need not be very long. But, reverſe theſe altogether; beſides that ſuch a farm muſt require a number of years, the expence of improving it will far exceed the value of the ground. This then being admitted, (or, whether it is ſo or not, it is certainly true); are proprietors to expect all this, without either encouragement or countenance? That has not taken place hitherto, nor can it be looked for in time to come, without ſuppoſing that the tenants are fooliſh or mad. This alſo accounts for many of thoſe who are reprobated by ignorant writers upon agriculture, who ſtigmatize the tenants as obſtinate, ſtupid, and refractory animals, without taking it into

to consideration, that their situation altogether precludes any other line of conduct, without manifest absurdity.

The path, however, is already trodden. Those only who wish to see people thrive under them, have a just claim to have their estates improven. Let such choose active, industrious, and enterprising tenants, and these will not be wanting, where any moderate encouragement is offered: let them have leases according to the situation the ground is in, and to the facility or difficulty of improving it: let them have the friendship and best advice of their landlords, or even, in some cases, a little pecuniary support, should occasion require it; and the end will be obtained, unless the first bargain is by far too hard.

On the other part, it is but right that those who have no bowels of compassion, should not obtain the same advantages. If you break the spirits of a man, any more than of a horse, will it make him more vigorous and active? The present times do not require all the indulgence that has been needed, to bring forward this business; but all times require discretion. What is renting a farm, but buying a great article of merchandize, where, as the time of payment is long, there must be such a fund in the mean time, as to enable a man to fulfil his first instalments; and activity, industry, and sobriety, to enable him to continue it to the end? And let the favour of the transaction, as in other cases, be accounted mutual.

Aberdeenshire, 4th April. B.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Remarks on the Lease and Cultivation Table, proposed in No. V.

GENTLEMEN,

IN your Fifth Number, you published the scheme of a Lease and a Cultivation Table, said to be adapted for a west country climate. Some time ago, I transmitted you a few observations on that performance, signed P.; in which, I spoke of Lord Kames's famous plan of a lease, as if it were entirely unknown to most of your readers. Since that time, however, looking over your Third Number, I find it mentioned in the Review of Dr Thomson's General View of the Agriculture of Fife, in these terms: 'Lord Kames's plan of a lease has

been much applauded; but it was left to Dr Thomſon to ſhew the reaſon why it has not found its way into general practice. While ſuch a mode of leaſehold is evidently advantageous to the public good, becauſe it promotes improvements, it certainly is prejudicial to the landlord's intereſt, upon the account here aſſigned, *viz.* that it throws into the tenant's hands every benefit that may ariſe from an increaſe in the value of produce, or, which is the ſame thing, from a fall in the value of money. We have not heard this objection offered before, and acknowledge the force and propriety of it.'

Now, gentlemen, as my ſituation in life really is an unlettered, but practical farmer; not altogether devoid of common ſenſe, yet poſſeſſed of no extraordinary ſhare of diſcernment; it is not my intention to enter the liſts with Dr Thomſon, eſpecially when he is ſeconded by the Conductors of the Farmer's Magazine, or at leaſt ſo able a correſpondent as Mr N. undoubtedly is; but merely to offer the following obſervations to their conſideration. And let me premiſe, that although Mr N. has not heard of the objection before, it is not new. Mr Vancouver, in his Survey of Eſſex, ſtates, that before any allowance be given to the tenant, the depreſſion in the value of money, the advantages ariſing from a new road or canal, or from the eſtabliſhment of a new manufacture in the neighbourhood, and, in ſhort, every thing that tends to render the produce of the farm more valuable, ſhould be deducted, and the remuneration ſtrictly confined to what internal melioration he has made on the ground.

Lord Kames ſeems to have foreſeen this objection. Otherwiſe, in place of propoſing to allow the farmer ten years purchaſe of the additional offer, he would have ſuggeſted twenty, or twenty-five, and the bargain ſtill have been a good one for the proprietor, while land readily ſells for thirty.

Perhaps I may here be told, that I miſtake the matter; for, although only ten times the additional rent is given, it is, in fact, much more; as the farmer is paid in advance, whereas the landlord's is an annuity for twenty-one years: and, to perſons little verſed in rural affairs, this is plauſible enough. But the practical agriculturiſt needs not be told, that though ſome improvements, as, incloſing and draining, are permanent, yet the greateſt part of the benefits accruing from moſt others, as, fallowing, manuring, and lenient rotations,

tations, are reaped in ſix or eight, often in two or three, years.

I have only further to obſerve, that the farmer now-a-days bears his fair proportion of the public burdens, and more. He is likewiſe liable, in common with other ranks in ſociety, to ſuffer, during the currency of his leaſe, from any occurrence that may injure the diſtrict in which he reſides. I do not ſee, then, why, in equity, he ſhould be precluded from participating in the advantage that may ariſe from any adventitious circumſtance, in proportion to his capital and induſtry.

P.

FOR THE FARMER'S MAGAZINE.

The following General Rules for the Management of a Farm, were written in the year 1763, by a Highland Gentleman educated as a Farmer in England, to a brother officer becoming Farmer after the reduction of the army, which took place that year. He is now a General Officer in foreign ſervice, and behaves in a manner that does honour to himſelf, and credit to his native country.

In every country where huſbandry is underſtood and practiſed with ſucceſs, the ſkilful farmer never loſes ſight of two firſt principles; and theſe are, the keeping his lands dry, and clean from weeds. It is vain to look for a good crop from ſeed ſown in mire and water, and equally fruitleſs to expect it from land choked and overrun with weeds and rubbiſh; which is the caſe of all the lands in Scotland, I have ſeen, with very few exceptions.

The firſt of theſe can partly be effected by ſunk fences, and partly by drains judiciouſly placed, with a proper fall to carry off the water; and the latter by a fallow, duly attended to, and ſown with turnips at the proper ſeaſon; than which, nothing is better calculated for cleaning, and afterwards keeping the lands clean. If theſe particulars be neglected, a ſcanty crop, and grain of an inferior quality, only can be expected.

The firſt thing to be done, preparatory to a regular rotation, is, yearly to fallow with turnips ſo much of the lands as can be well done, and to provide dung for laying it down the enſuing

ſuing Spring with barley and graſs ſeeds; and ſo on, till it is reduced and brought to a proper ſtate of fertilization and cleanneſs.

Theſe things being premiſed, the next thing to be obſerved, is the rotation.

The farm ſhould be divided into five equal parts, as nearly as the nature of the land and ſituation will permit, under the following crops, *viz.* a fifth under two year old graſs—a fifth under one year's graſs—a fifth under barley and oats, or partly both, as the nature of the ſoil admits, ſown with graſs ſeeds—a fifth turnips—and a fifth wheat. The next year the two year old graſs will be wheat—the one year old graſs will be two years old—the barley will be one year old graſs—the turnips will be barley, and the wheat turnips—and ſo on yearly, in this circle, which is narrow and ſimple; and, with a little judgement and attention, may be adapted to almoſt all the lands in Great Britain, where there is climate ſuitable.

As the ſoil of is of an inferior quality, and in few places calculated for wheat, barley ſhould be put in its place. But as the ſoil of is of a kindly nature, wheat may go in its own place, and the half of the wheat ſtubble, beſt in heart and freeſt from weeds, may be ſown with peas: for peas ſhould never be ſown, but in a ſoil where, with a middling ſeaſon, there will be almoſt a certainty of long ſtraw and a luxuriant crop; for, of all others, it is the moſt impoveriſhing and ruinous crop to the land, if it fails. Graſs and turnips, beſides the immediate profits ariſing from them, are in their conſequences of unſpeakable advantage, by the numbers of cattle they will maintain; and will be the means of ſupplying the farm with great additional quantities of dung, which is the *Materia Medica* in farming, or, if I may uſe the expreſſion, the life and ſoul of the land; and therefore ought to be attended to with the utmoſt diligence: though, beſides dung, and in order to render the land of a proper conſiſtence, it ſhould be compounded with marl or clay, where either of them can conveniently be had: the blue clay is eſteemed the beſt. And perhaps, the knowledge of a juſt compounding of ſoil may be as conſiderable a branch of the farmer's art, as any other whatſoever. The farmer muſt exerciſe his whole ſkill and experience, when the land is too ſtiff, to make it lighter, *& vice verſa.* It will not be denied that there may be ſome ſalts, both in clay and marl, very proper for vegetation; but they are of eſſential uſe in forming that due conſiſtence ſo particularly neceſſary, that the ſoil be

be neither too ſtiff for the tender *fibula* to ſhoot through, nor ſo looſe, but that it may properly adhere, and not drop away and leave them to periſh for want of due nouriſhment. In lighter ſoils, there is ſtill a farther advantage from marl and clay; as, by waſhing downwards, they form a pan or cruſt at the bottom of the ſoil, and thereby prevent the water from draining too faſt off thoſe very light lands, on which a farmer muſt lay a very great ſtreſs.

The ploughings and harrowings for barley and turnips, ſhould be repeated four times, if the ſeaſon and opportunity will allow, until the ſoil is ſo fine that it might be ſifted; and if ſo, the barley ſhould be ſown and ploughed in with a light ſhallow fur. The wheat, not being of ſo delicate a nature as barley, does not require the land to be ſo much pulveriſed; unleſs under fur, three ploughings will anſwer.

N. B. Theſe are a few general rules in farming, which ought to be invariably obſerved. Seaſons, and many other accidents, will make a deviation abſolutely neceſſary: yet, without keeping a certain general rule in view, every thing muſt run into confuſion. But in this, as in moſt other ſciences, there is much room for the ſkilful huſbandman to exerciſe his judgement; and they are often the beſt rules which are drawn from the nature of the ſoil, grounded on experience. Nevertheleſs, theſe few hints may, by a judicious farmer, with proper variations, be adapted to every kind of ſoil.

I omitted, in its proper place, to mention, that the above circle, duly attended to and performed, not only gives the farmer a certainty of ſubſtantial crops of every ſpecies of grain, &c. but mightily contributes (by dividing the work betwixt the ſeaſons) to leſſen the expence of labour; an advantage not poſſible to be attained in the preſent ſlovenly and ruinous mode, in which a farmer can never raiſe himſelf above neceſſity, nor be of public utility.

Turnips ſhould be ſown from a week before, till a week after, Midſummer; Wheat from the 1ſt till the 22d of October. Oats and Peas ſhould be in the ground by the beginning of April; and Barley, at fartheſt, by the 11th of May.

FOR THE FARMER'S MAGAZINE.

Obſervations on the Means of Enabling a Cottager to Keep a Cow, by the Produce of a Small Portion of Arable Land. By SIR JOHN SINCLAIR, *Bart. M. P. Drawn up for the Conſideration of the Board of Agriculture and Internal Improvement.*

IN ſeveral parts of the kingdom, as in Lincolnſhire, Rutlandſhire, &c. which are calculated for grazing, it is not unuſual to give induſtrious cottagers as much land as will enable them to keep a cow, and ſometimes two, beſides other ſtock; and it appears from the communications of Lord Winchelſea and others, to the Board of Agriculture; from the publications of the Society for Bettering the Condition of the Poor; and from a late intereſting work printed by Mr Arthur Young *, that ſuch a ſyſtem is productive of the happieſt conſequences. It is ſuppoſed, however, to be totally inapplicable to an arable diſtrict. I truſt that ſuch an opinion will not be admitted, without full conſideration. Indeed, ſo far as I can judge, this advantageous ſyſtem is to the full as well adapted for the one diſtrict as for the other. It requires unqueſtionably more labour, on the part of the cottager and of his family; at the ſame time, the occupation of ſo great an extent of ground, is not ſo neceſſary in arable, as in grazing counties; a circumſtance, in various reſpects, extremely material.

In arranging the following plan, (which the reader will pleaſe to conſider merely as furniſhing an outline, to be perfected by farther diſcuſſion and experiment), it is propoſed to keep in view the following principles.

1*ſt*, That the cottager ſhall raiſe, by his own labour, ſome of the moſt material articles of ſubſiſtence for himſelf and his family.

2*d*, That he ſhall be enabled to ſupply the adjoining markets with the ſmaller agricultural productions. And,

3*d*,

* Entitled, "An Inquiry into the Propriety of applying Waſtes to the better Maintenance and Support of the Poor."

3*d*, That both he and his family ſhall have it in their power to aſſiſt the neighbouring farmers, at all ſeaſons of the year, almoſt equally as well as if they had no land in their occupation.

It can hardly be queſtioned, that if it were practicable to have a number of cottagers of that deſcription in every pariſh, it would promote, in various reſpects, the intereſts of the public.

I. *Extent of Land neceſſary.*

Unleſs the experiment were fairly tried, it is impoſſible to ſtate exactly the extent of arable land requiſite to enable a cottager to raiſe the articles generally neceſſary for the ſuſtenance of himſelf and family, and to keep a cow, ſome pigs, and poultry. Much muſt depend upon the natural richneſs of the ſoil, (though, under the management about to be propoſed, almoſt any ſoil would in time become fertile); on the nature of the climate; on the ſize of the cow; on the induſtry of the cottager; on the age and number of his family, &c. But I ſhould imagine, that three ſtatute acres and a quarter of good arable land, worth from 20s. to 30s. *per* acre, would be ſufficient. It is propoſed, that the three acres ſhall be under a regular courſe of cropping. The quarter of an acre ought, if poſſible, to be converted into an orchard, where the cow might occaſionally paſture, and where a pond ought to be kept in good order, that it may have plenty of water at command. Were the land of a quality fit for lucerne, perhaps two acres and a quarter might be ſufficient.

II. *Stock and Inſtruments of Huſbandry.*

It is evident, that ſo ſmall an extent of land, as either two or three acres, under cultivation, excludes all idea of ploughing *; and indeed, unleſs the cottager ſhall manage the whole in the ſimpleſt and cheapeſt manner, there is an end to the ſyſtem. It would require, indeed, four or five acres to keep a ſingle horſe; and the expence of purchaſing horſes, or even oxen, ploughs, and other inſtruments of huſbandry, muſt be far beyond the abilities of a cottager; whereas with a ſpade, a hoe, a rake, a ſcythe, a ſickle, and a flail, which are all the inſtruments really neceſſary, he is perfectly competent to the management of his little farm.

* Ploughs might, perhaps, be hired; but, on the whole, the ſpade-culture is infinitely preferable; and I would much rather ſee a cottager hire perſons to trench than to plough for him.

III. *Courſe of Crops, &c.*

The three acres propoſed to be cultivated, ſhould be divided into four portions, each conſiſting of three roods, under the following ſyſtem of management:

	Roods.
Under potatoes, 2 roods, under turnips, one *	3
Under winter tares, 2 roods, ſpring tares, one.	3
Under barley, wheat, or oats - -	3
Under clover, with a mixture of rye graſs † -	3
Total 12 Roods.	

Other articles beſides theſe might be mentioned; but it ſeems to me of peculiar importance, to reſtrict the attention of the cottager to as few objects of cultivation as poſſible.

It is propoſed, that the produce of the two roods of potatoes ſhall go to the maintenance of the cottager and his family ‡; and that the rood of turnips ſhould be given to the cow in Winter, and during the Spring, in addition to its other fare.

The ſecond portion, ſown with tares, (the two roods of potatoes of the former year to be ſucceſſively ſown with Winter tares, and the turnip rood with Spring tares), might partly be cut green, for feeding the cow in Summer and Autumn; but, if the ſeaſon will permit, the whole ought to be made into hay, for the Winter and Spring food, and three roods of clover cut green for Summer food.

The third portion, may be ſown either with barley, wheat, or oats, according to the ſoil or climate, and the general cuſtom of the country. The ſtraw of any of theſe crops would be of eſſential ſervice for littering the cow; but would be ſtill more uſeful, if cut into chaff, for feeding it.

The fourth portion, appropriated to clover and rye-graſs, to be cut green; which, with the aſſiſtance of the orchard, will

* I would alſo recommend a ſmall quantity of flax, where the culture and management of the plant was known, to employ the females, particularly in Winter, and to ſupply the family with linen.

† Some recommend the proportion, per acre, to be at the rate of one buſhel of rye-graſs to 12 libs. of red clover; others, 14 libs. of red clover to half a buſhel of rye-graſs.

‡ By Sir Mathuen Poore's experiments, it was found, that half a rood, or one-eighth of an acre, produced, for ſeveral years, as great a weight of potatoes as was ſufficient for a family of four perſons.—Four acres anſwered for 13½ perſons.

will produce, on three roods of land, as much food as will maintain a cow and her calf for five months, namely, from the end of May, or beginning of June, when it may be firſt cut, to the firſt of November, beſides ſome aſſiſtance to the pigs. It is ſuppoſed, that an acre of clover and rye-graſs, cut green, will produce 20,000 libs. weight of food for cattle. Three roods, therefore, ought to yield 15,000 libs. weight. A large cow requires 110 libs. weight of green food per day; a middling cow, ſuch as a cottager is likely to purchaſe, not above 90 libs., conſequently, in five months, allowing 1320 libs. weight for the calf and the pigs, there will remain 13,680 libs. for the cow *. Were there, however, even a ſmall deficiency, it would be more than compenſated, by the rood of land, propoſed to be kept in perpetual paſture, as an orchard.

IV. *Mode in which the Family may be maintained.*

It is calculated, that three roods and eight perches of potatoes will maintain a family of ſix perſons, for about nine months in the year; but, according to the preceding plan, it is propoſed to have but two roods under that article; for, however valuable potatoes are juſtly accounted, yet ſome change of food would be acceptable; and the cottager will be enabled, from the produce of the cow, and by the income derived from his own labour, and from that of his family, to purchaſe other wholeſome articles of proviſion.

V. *Manner in which the Stock may be kept.*

It appears from the preceding ſyſtem of cropping, that ten roods of land, or two acres and a half, are appropriated to the raiſing of food for the cow in Summer and Winter, beſides the paſture of the orchard; and, unleſs the ſeaſon ſhould be extremely unfavourable, the produce will be found not only adequate to that purpoſe, but alſo to maintain the calf for ſome time, till it can be ſold to advantage. It is indeed extremely material, under the propoſed ſyſtem, to make as much profit of the calves as poſſible, as the money thus raiſed, will be a reſource, enabling the cottager to replace his cow, when a new one muſt be purchaſed.

For the Winter proviſion of the cow, which is the moſt material,

* Theſe calculations are merely given as *data* for experiment. It muſt depend upon the ſeaſon, whether the tares or the clover ſhould be made into hay.

material, becauſe the Summer food can be more eaſily procured, there is the produce,

1. Of about three roods of tares made into hay.

2. Of three roods of ſtraw, deducting what may be neceſſary for litter; and if dry earth be put into the cow's hovel, and removed from time to time to the dunghill, little or no litter will be neceſſary.

3. Of one rood of turnips.

The whole will be ſufficient for ſeven months in the year, namely, from the 1ſt November to the 1ſt June; and during the remaining five months, the paſture of the orchard, ſome of the Winter tares, and the produce of three roods of clover and ryegraſs, will not only ſuffice, but will furniſh a ſurplus for the calf, if it is kept for any length of time, * and ſome clover for the pigs.

The inferior barley, potatoes, &c. will of courſe be given to the pigs and the poultry.

VI. *Value of the Produce.*

The land thus managed, will certainly produce, by means of the extra induſtry of the family, and at a ſmall expence, a moſt important addition to the income which the cottager may derive from his ordinary labour. For inſtance,

	per ann.
1. The orchard, after the trees become fruitful, will probably yield - - - -	L. 1 10 0
2. Three roods of turnips and potatoes -	4 0 0
3. Eighteen buſhels of barley, at 4s. -	3 12 0
4. The cow and calf † - - - - -	7 0 0
5. Hogs - - - - -	3 0 0
6. Poultry and eggs - - -	2 0 0
Total	L. 21 2. 0

* In a pamphlet juſt publiſhed by Richardſon, Cornhill, on the culture of potatoes, price 1s., the following mode of applying the refuſe potatoes to the feeding of calves, is ſtrongly recommended.

"Take two gallons of ſmall potatoes, waſh them clean, put them into a pot "of boiling water ſufficient to cover them, and let them boil till the whole "becomes a pulp: then add more water, and run the whole through a hair "ſieve, which will produce a ſtrong nutritive gruel. At firſt, uſe a very ſmall "quantity, warmed up with milk, to make it palatable to the calf, and increaſe the quantity daily, till it becomes equal. A quart of potato gruel, "and a quart of ſcald or ſkimmed milk, will be ſufficient for a good meal, "which ſhould be given warm three times a day."

† According to Mr Kent's calculations, a cow ſhould produce ſix quarts of milk per day, worth 1d. per quart, equal to 3s. 6d. a week, or 9l. 2s. *per annum*, ſetting the profit of the calf againſt the loſs ſuſtained when the cow is dry; but it is better to be rather under than over the mark.

Where wheat can be raiſed, inſtead of barley, the profit would be ſtill more conſiderable. Opinions will differ much regarding the value put on each article; but that is of little conſequence, as the total cannot be accounted too high.

VII. *Time required for cultivating the Land.*

The quantity of land, intended to be cultivated, will not materially interfere with the uſual labour of the cottager. It will only require to be dug once, and is then fit to be cropped. It is propoſed that only nine roods ſhall be annually cultivated, (the remaining three roods being under clover and ryegraſs), and nine roods may be dug in the ſpace of about 558 hours, or at the rate of 62 hours per rood. This might be done at by-hours, (more eſpecially when the family of the cottager ſhall be ſomewhat advanced, and conſequently more able to furniſh aſſiſtance); but ſuppoſing that the digging, manuring, harveſting, &c. will require twenty entire days *per annum*, in addition to the by-hours, and allowing ſixty days for Sundays and Holidays, there will remain 285 days for the ordinary hand labour of the cottager, which, at 1s. 6d. per day, would amount to 21l. 7s. 6d.; the earnings of the wife and children, may, at an average, be worth at leaſt 4l. *per annum* more. This is certainly a low calculation, conſidering how much may be got during the hay and corn harveſts. But, even at that moderate eſtimate, the total income of the family will be as follows:

1. Produce of the farm - - -	L. 21	2	0
2. Labour of the cottager - - -	21	7	6
3. Earnings of the family - - -	4	0	0
Total	L. 46	9	6

VIII. *Buildings.*

It is impoſſible to calculate the expence of building a cottage, as ſo much depends upon its ſize, the place where it is ſituated, the materials of which it is compoſed, the price of labour in the country, and a variety of other circumſtances. On this important ſubject, much uſeful information is contained, in the firſt volume of the Communications publiſhed by the Board of Agriculture. But it is proper to obſerve, that no expenſive additional buildings will be neceſſary, in conſequence of the propoſed ſyſtem. A ſhed or hovel for the

cow,

cow, cannot occaſion much expence; and a ſmall barn, of the ſimpleſt and cheapeſt conſtruction, may be of uſe, not only for thraſhing the crop, but alſo for ſecuring the hay, and making it to more advantage, in caſe the ſeaſon ſhould prove unfavourable; if the corn is put up in ſmall ſtacks, the barn may be made of very moderate dimenſions.

IX. *Rent, and Balance of Income.*

The rents of cottages, and of land, vary ſo much in different parts of the kingdom, that it is difficult to aſcertain an average. But if the cottage ſhall be ſtated at 3l. *per annum*, the land at 25s. *per* acre, and the orchard at 10s., the whole will not exceed 7l. 15s. The cottager will alſo be liable to the payment of ſome taxes, ſay to the amount of 1l. 5s. more. Hence the total deductions would be about 9l., leaving a balance in favour of the cottager of 37l. 9s. 6d. Conſidering the cheap rate at which he is furniſhed with a quantity of potatoes, equal to ſeveral months conſumption, and with milk for his children; ſurely, with that balance, he can find no difficulty, not only in maintaining himſelf and family, in a ſtyle of comfort, but alſo in placing out his children properly, and laying up a ſmall annual ſurplus, that will render any pariſh aſſiſtance, either in ſickneſs, or old age, unneceſſary; preſerving thus the manly ſpirit which it ſo well becomes a Britiſh cottager to poſſeſs. *

Conclusion.

Advantages of the propoſed Syſtem.

I ſhall now endeavour briefly to explain ſome of the advantages which may be looked for, with confidence, from the propoſed ſyſtem.

In the firſt place, the land poſſeſſed by the cottager, would be completely cultivated, and rendered as productive as poſſible. The dung produced by the cow, the pigs, &c. would be amply ſufficient for the three roods under turnips and potatoes, which would afterwards produce, 1. Tares, 2. Barley, and 3. Clover, with a mixture of rye-graſs, in regular ſucceſſion, without any additional manure. The barley ſhould yield at leaſt 18 buſhels, beſides 3 buſhels for ſeed; and if wheat

* The different expence of fuel in the various diſtricts, will, it is evident, greatly affect the annual ſurplus.

wheat is cultivated, in the ſame proportion. The milk, deducting what may be neceſſary for the calf, and for the cottager's family, might be ſold in its original ſtate, if there ſhall be a market for it; or converted into butter, for the purpoſe of ſupplying the neighbouring towns or villages. Such cottagers alſo, might certainly ſend to market, both eggs and poultry.

2. It is hardly poſſible to ſuggeſt a meaſure, more likely to promote the benefit of a numerous and valuable body of people. The ſyſtem of keeping cows by cottagers, which has been found ſo advantageous in the grazing diſtricts, † may thus be extended over the whole kingdom; and indeed, if the above plan is found to anſwer, in place of _ or 5 acres employed in feeding a ſingle cow, it would be much better, even in the grazing counties, to reſtrict the land to a ſmaller quantity, under a tillage mode of management.

3. It is of infinite conſequence to eſtabliſh the practicability of this ſyſtem, as the means of removing a moſt unfortunate obſtacle to the improvement of the country. It is well known to be the only popular objection to the incloſure of our waſtes and commons, that, while uninclоſed, a number of cottagers are enabled to keep cows, by the means of their common rights, and that their cows diſappear when the commons are incloſed. But if ſo ſmall a portion of land, as $3\frac{1}{4}$ acres, when improved and properly cultivated, can enable a cottager to keep a cow, to more advantage, than with a right of common, which can hardly be doubted, as he is enabled to provide Winter as well as Summer food, there is an end to that obſtacle to improvement. Indeed, if ſufficient attention be paid to the principles above detailed, the ſituation of the cottager, inſtead of being deteriorated,

† The advantages which have reſulted from this ſyſtem, in the grazing diſtricts, are thus ably ſtated by Lord Winchelſea.

"The cottagers who keep cows, are almoſt all of them labourers in huſ-
"bandry. The education of their children to the management of cattle and
"of a dairy, and to every occupation that can fit them for the ſervice of a
"farmer, is a very important advantage of this ſyſtem: And if there were no
"other benefit to be derived from it, but that of adapting, and habitually pre-
"paring the riſing generation for the moſt uſeful and neceſſary employment in
"the iſland; this alone would produce an abundant compenſation for any ef-
"fort, or attention, that has been, or may be directed to the ſubject. They
"are not only ſtout, healthy, clean, well-clothed, and educated in regular and
"principled habits of life, but they are uſed to almoſt every part of their buſi-
"neſs from the earlieſt period of life; every inhabitant of the cottage being,
"from infancy, ſo intereſted in their cow, their pig, their ſheep, and their
"garden, as to imbibe, at a very early age, all the material information and
"habit in thoſe ſubjects."

deteriorated, would be materially bettered by the incloſure; and his riſing family would be early accuſtomed to habits of induſtry, inſtead of idleneſs and vice.

I ſhall conclude with aſking, if any one can figure to himſelf a more delightful ſpectacle, than to ſee an induſtrious cottager, his buſy wife, and healthy family, living in a comfortable houſe, rented by himſelf, cultivating his little territory with his own hands, and enjoying the profits ariſing from his own labour and induſtry? Or, whether it is poſſible for a generous landholder, to employ his property with more ſatisfaction, or in a manner more likely to promote, not only his own, but the public intereſt, than by endeavouring to increaſe the number of ſuch cottagers, and encouraging, by every means in his power, the exertions of ſo meritorious, and ſo important a claſs of the community.

London, May 1801. JOHN SINCLAIR.

APPENDIX TO FOREGOING ARTICLE.

THE practicability of a cottager being enabled to keep a cow, by the produce of arable land only, is ſtrongly confirmed by the following communication from Sir Henry Vavaſour, Bart. to the Preſident of the Board of Agriculture.

To the Right Hon. LORD CARRINGTON, *P. B. A. &c.*

MY LORD, *London, May 20th* 1801.

I HAVE had the honour of mentioning, in converſation to your Lordſhip, the advantages that appeared to me, in cultivating land in the Flemiſh manner; or, what is now called, about Fulham and that neighbourhood, the *field-gardening* huſbandry. I have, for ſome years, encouraged my cottagers in Yorkſhire, in this mode of managing their ſmall garths or gardens, which are, in general, from one to three acres. I have now an opportunity of ſtating the huſbandry of a poor induſtrious cottager's garth. As the man can neither read or write, theſe particulars have been tranſmitted to me, from his own mouth; and, as I ſaw his land almoſt every day during the laſt harveſt, I can vouch, that this account is not far from the truth.

Pro-

Produce.	*Value.*	A.	R.	P.
240 Buſhels of potatoes -	L. 24 0 0	0	2	0
60 Ditto of carrots - -	6 0 0	0	1	0
5 Quarters of oats, at 44s. per quarter - - -	11 0 0	0	3	20
4 Load of clover, part in hay, part cut green - -	12 0 0	1	0	10
Turnips - - -	1 0 0	0	0	20
In garden-ſtuff for the family, viz. beans, peas, cabbages, leeks, &c. - -	0 0 0	0	0	30
	L. 54 0 0*	3	0	0

Deduct Rent -	L. 9	9	0 Including the Houſe.
Seeds, &c. -	3	3	0
Value of labour	10	10	0
	L. 23	2	0

Produce before ſtated	L. 54	0	0
	23	2	0
Profit	L. 30	18	0 if ſold at market, excluſive of butter.

His ſtock was two cows and two pigs; one of his cows had a Summer's gait for twenty weeks with his landlord. The land was partly ploughed and partly dug with the ſpade, cultivated (the ploughing excepted) by the man, his wife, and a girl about twelve years of age, in their *ſpare* hours from their daily *hired* work, ſeldom a whole day off, except in harveſt: Made the rent in butter, beſides a little uſed in the family. The man relates, that he thinks he clears, one year with another, from the three acres, about 30l. The daily wages his family earns about keep them. It is very evident, that this man clears, from his three acres, more than a farmer can poſſibly lay by from more than eighty acres of land, in the common huſbandry of the country, paying for horſes, ſervants, &c.; and it muſt be obvious to every one, how great the advantages muſt be to ſociety, in cultivating land in this manner. It would have taken more than half the quantity of his three acres in paſture, for one cow at graſs, during half the year; whereas, (excepting the Summer's gait for one of his cows, as mentioned before), his ſtock, of two cows and two pigs, is kept and carried on the whole year. The family lives well; and a handſome ſum has been yearly ſaved, to place out two ſons, and ſupply them with clothes, waſhing, &c. I am, &c.

P. S. The man's name is *Thomas Reed*. HENRY VAVASOUR.

* Theſe ſums are conformable to the prices of this year; but it is evident, that, in other ſeaſons, they muſt in general be lower.

Plan of the propoſed Cottage Farm, pointing out the Rotation of Crops in the different Lots.

Cottage.	The Orchard, or perpetual Paſture.	Pond.

Lot A.	Lot B.
3 Roods.	3 Roods.
1 Year { 2 Roods Potatoes / 1 Rood Turnips	1 Year { 2 Roods Winter Tares / 1 Rood Spring Tares
Lot C.	Lot D.
3 Roods.	3 Roods.
1 Year—Barley, Wheat, or Oats.	1 Year—Clover and Rye-graſs.

The Rotation of Crops for Four Years.

Year.	Lot A.	Lot B.	Lot C.	Lot D.
1	Potatoes and Turnips.	Winter and Spring Tares.	Barley, Wheat, or Oats.	Clover and Rye-graſs.
2	Winter and Spring Tares.	Barley, Wheat, or Oats.	Clover and Rye-graſs.	Potatoes and Turnips.
3	Barley, Wheat, or Oats.	Clover and Rye-graſs.	Potatoes and Turnips.	Winter and Spring Tares.
4	Clover and Rye-graſs.	Potatoes and Turnips.	Winter and Spring Tares.	Barley, Wheat, or Oats.

The rotation then begins as at firſt. Lot D might continue in natural graſs the firſt ſeaſon, to diminiſh the labour of that year.

The exact period when the different crops ſhould be dug for, or ſown, cannot be aſcertained, becauſe it varies ſo much in different counties, and depends upon the ſeaſons; but, according to the above rotation, the labour of digging for the various crops is diverſified as much as poſſible, ſo as not to interfere materially with the other occupations of the cottager. At no period would it be neceſſary for him to dig more than two roods in a month; and both he and his family will labour with much more ſatisfaction and diſpatch, when they work for themſelves, than for another. In caſe of neceſſity, the cottager might hire ſome of his neighbours to aſſiſt him in digging, which would be much better than hiring a plough.

Board

Board of Agriculture, 9th June 1801.

RESOLVED, That a premium, of the Gold Medal, be offered to each of the five perſons who ſhall, in the moſt ſatisfactory manner, prove by experiment, the practicability of cottagers being enabled to keep one or two milch cows, on the produce of land cultivated with the ſpade and hoe only, and who ſhall ſend to the Board, on or before the 1ſt of January 1803, the beſt accounts of ſuch experiments, detailing,

1. The expence of erecting the cottage, ſhed, and any other building thought neceſſary.
2. The expence of providing the ſtock and tools neceſſary.
3. The extent of land, and nature of the ſoil occupied.
4. The expence of digging and fencing the land.
5. The rent, taxes, &c. paid for the ſame by the cottager.
6. The courſe of cropping that has been adopted.
7. The quantity and value of each of the different crops.
8. How the cottager and his family are maintained, and how they manage to cultivate the ground, and to harveſt the different crops?
9. How the cow is maintained during the year, and what profit is derived from it?
10. What profit is derived from pigs, poultry, and other articles?
11. How many days they were enabled to labour for other people? And
12. How, on the whole, the plan has been found to anſwer?

Reſolved, That this reſolution be printed and circulated with the obſervations drawn up by Sir John Sinclair, on the means of enabling a cottager to keep a cow by the produce of arable land, and the appendix to the ſame, written by Sir Henry Vavaſour.

N. B. The Board reſerves to itſelf the power of withholding any premium, when the communication or communications are not deemed ſufficiently important to merit the reward.

The MS. &c. ſent in claim of premiums, to remain the property of the Board.

All memoirs &c. ſent in claim of premiums, to be without names, but with a mark or number, and accompanied by a ſealed letter, (on which is to be written the ſame mark or number), containing the name and addreſs of the claimant; which ſealed letter will not be opened, unleſs the premium is adjudged to that mark or number.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Observations on the Forms of Leases.

GENTLEMEN,

I observe, in one of your former Numbers, some remarks by a practical farmer, as well as by another of your correspondents, on the form of a lease, communicated by J. W. The observations of your correspondents seem to be well founded; and yet they are made with a degree of acrimony which certainly ought not to appear in the discussion of a subject so truly interesting to a great proportion of the community.

Leases are, in general, prepared by the agent of the landlord; hence there is a natural bias in favour of his rights. The agent, too, is seldom acquainted with agriculture, either in theory or practice; and the natural consequence of all this is, that the intelligent farmer looks with contempt on every endeavour to overrule his operations by a person who is unable to judge of them. The spirit with which these parties will meet, cannot produce much harmony; nor is any good to be expected, until, laying aside all prejudice, each shall contribute his skill to the formation of a proper lease; the agriculturist ascertaining precisely under what circumstances a plan of management may be introduced, and to what points it ought to be directed; while the agent contents himself with expressing the conditions in a plain and effectual manner, and in regulating the legal part of the deed, so as best to secure the rights and interests of the parties.

This is a subject on which your valuable correspondents are capable of throwing great light; and as it is one of much interest both to landlord and tenant, I am hopeful they may be induced to bestow on it some attention. With a view to bring it before them, I beg leave to trouble you with a few loose hints on the subject.

Let it be supposed, that, on the expiry of a lease, a number of skilful farmers were called together, to prescribe a plan of management of the farm for the next 19 years, surely the same plan would not occur to all of them as the best. On this point there would be a difference in opinion. A farm in one part of the country, though agreeing with a farm in another part, in regard to soil and condition, would not perhaps admit of the same crops, or rotation of crops. A

plan

plan which might be ſucceſsfully followed by a tenant poſſeſſed of a powerful capital, could not be attempted by a tenant poſſeſſed of one leſs powerful. In ſhort, independently of the fluctuation of ſeaſons, there are many circumſtances which render a general plan of management, by which every ſtep to be taken by the tenant is preſcribed, inadmiſſible. But while a general plan of this nature may be unattainable, it does not follow, that ſuch a plan, adapted to a particular farm under certain circumſtances, may not be ſerviceable to all parties.

But, here, I would ſubmit to the proper judges, whether a diſtinction ought not to be made betwixt a general plan of management, which ſhould tie down the tenant to follow out implicitly a certain plan, and that which ſhould prove only prohibitory, and prevent him from doing what might injure the farm.

It certainly is conſiſtent with the nature of this contract, that the tenant ſhould uſe the land without deterioration. It is alſo obvious, that, in many ſituations, it may be his intereſt to run out the farm: nay, your correſpondent has remarked, (and, perhaps, without much injuſtice), that it is a poſſible thing for a landlord, who holds a power of working mines, and ſearching for minerals, to do a material injury to his tenant, under the pretences which ſuch a power affords him. In the ſame way, it will be allowed, that a tenant unreſtricted, poſſeſſes a conſiderable power of injuring the proprietor. The exerciſe of ſuch powers ought to be reſtricted by the conditions of the leaſe; and a leaſe is certainly very ill-framed, where either party, under the influence of caprice or ill-humour, may ſecurely exerciſe powers hurtful to the other. Though, therefore, a general poſitive plan (if you will allow me the expreſſion) may not be expedient, a prohibitory one, which may circumſcribe the exerciſe of powers hurtful to the parties, would at leaſt be conſiſtent with the nature of the leaſe.

And, here, although farmers might not agree as to the beſt mode of managing a farm, they would certainly unite in fixing on certain practices as improper, and not to be tolerated. Theſe, when drawn out by intelligent men, we might diſtinguiſh as a prohibitory plan, applicable to all places, without diſtinction. And they would operate, as I ſhould conceive it, 1. In reſtraining tenants from what might be prejudicial to themſelves, as well as to the landlord, in thoſe diſtricts where the true principles of farming are not proper-

ly underſtood: 2. They would, in all caſes, prevent a tenant from committing an act of injuſtice to the landlord, whether impelled to it by ſelf-intereſt or ill-humour.

Perhaps it might be poſſible to go farther, and, in thoſe diſtricts where farming is little underſtood, to preſcribe certain poſitive rules, that would tend to lay the foundation of a better practice; though this is a matter that certainly requires to be managed with the utmoſt caution and circumſpection.

Admitting, then, that a general poſitive plan never can be framed, it becomes a very intereſting queſtion, whether a poſitive plan may not be laid down for each farm at the commencement of a leaſe? It is here that the great difficulty ariſes; for, on the one hand, if a plan, with ſuperior advantages, can be adopted, Why ſhould it not be done; while, on the other, ſuch a plan ſeems to reduce the tenant to a mere cypher, to depreſs that knowlege, and damp the ardour by which the ſtudy of agriculture is to be extended and improved?

This is a point, on which the paſſions, as well as the intereſts of thoſe concerned, are likely to have conſiderable influence; and therefore, the diſcuſſion of it, requires a peculiar degree of circumſpection. We muſt take care, that our feelings do not miſlead the judgment. For my own part, I muſt confeſs, were it poſſible to preſcribe a plan of management for each tenant in the kingdom, there would ſtill remain, in my opinion, ſcope enough for the judgment and abilities of the tenant; while the introduction of a ſet of men, neceſſary for preparing ſuch plans of management, would, in all likelihood, tend to render eſſential ſervice to the ſcience itſelf.

I truſt you will forgive theſe hints. I am conſcious I have been venturing to ſpeak on a ſubject, of which I have no knowledge; but I have done ſo, with a view to turn the attention of your correſpondents to it; ſatisfied that it is one, in which the intereſt of the country is materially concerned; and from a ſincere deſire, to ſee the form of a leaſe fairly diſcuſſed by thoſe who are beſt able to examine its powers, as they affect the agricultural intereſt of the nation. Let this be my apology and my title to the attention of your correſpondents. I am, &c.

June 1801. A. B.

FOR THE FARMER'S MAGAZINE.

Intelligence relative to Sheep, &c.

As I live in a diſtrict where large flocks of ſheep are kept, I will, if you deem it of ſufficient conſequence, occaſionally tranſmit you, for your quarterly reports, an account of their ſtate and condition, their number, compared to thoſe of a full ſtock, &c. In both theſe reſpects, they were very much reduced, by the extreme ſeverity of the weather in 1799 and 1800. Laſt year, the lambs, in ſeveral ſituations, did not reach the uſual number; but the ſucceeding Winter having been very favourable, more than the uſual proportion of them have been ſhorn. In the Autumn of 1800, many farmers kept moſt of their draft ewes and wedders; yet, ſo great was the mortality in the two ſeaſons I have mentioned, that almoſt all the paſtures were much underſtocked. The number of ewes, however, being greater than uſual, the quantity of lambs, weaned laſt ſeaſon, perhaps exceeded that at any other period within the memory of any man living; and, if this and next Winter prove favourable, we will own that we never knew a fairer proſpect of being able to obtain a full ſtock for our hills. The flocks, in general, are at preſent very healthy, and in good condition; but ſtill, I apprehend, we will not be able, next Autumn, to ſupply the markets with the uſual quantity of Highland ſheep. This Winter has, as yet, cauſed but very ſmall conſumption of hay, for this kind of live ſtock; and, as very little was uſed laſt ſeaſon, the quantity of that article, in moſt parts of this diſtrict, is very conſiderable; ſo that, as turnips, and other kinds of food, are very plentiful in the adjoining cultivated and incloſed country, we entertain hopes of being able to bear a good deal of ſevere weather, with ſmaller loſs than is generally ſuſtained. I ſhall now requeſt leave to refer you to my letter of the 1ſt inſtant, and to ſay, that, as a proportion of the land I intend to improve, in the loweſt parts of my farm, has been long nearly covered with ferns, coarſe graſs, and ſome ruſhes, I intended to pare and burn it; but, on conſulting ſome tillage farmers on this and the other ſubjects mentioned below, I have found ſuch diverſity of opinion, that I am induced to beg, *moſt earneſtly*, that ſome experienced men will, through the medium of your Magazine, favour me with their ſentiments on paring and burning, and the time the land ſhould be kept in tillage, ere it be returned to graſs; and alſo with anſwers to the following queſtions; *viz.* Whether, for ſuch land as the above, lime or

marl is the moſt beneficial manure, ſuppoſing the latter at about half the diſtance of the former? Whether any advantage has reſulted from mixing quicklime with marl, or whether theſe manures ſhould be applied ſeparately? And whether, ſuppoſing lime and fuel extremely expenſive, (including long carriage), and limeſtone pretty near, it would be moſt beneficial to uſe lime, or unburnt limeſtone reduced to a coarſe powder, if this operation could be performed at a cheap rate, by a machine near the (rather ſoft) limeſtone rock?

Nov. 1801. PASTOR.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

On improving the Breed of Live Stock.

GENTLEMEN,

HAVING long entertained an opinion, that a Periodical Publication, calculated for the diffuſion of rural knowledge, would prove of vaſt utility, I heard of yours with much pleaſure; and am happy in ſaying, that its peruſal has afforded me highly uſeful and gratifying information. Beſides its many valuable communications on huſbandry, from various parts of the kingdom, the intelligence reſpecting the ſtate and prices of the crops in theſe parts, together with thoſe of cattle and ſheep, cannot but be highly intereſting to every farmer. May it prove highly conducive to the advantage of agriculture, in every pariſh of Great Britain and Ireland; and may her people ſoon declare, that you have 'deſerved 'well of your country!!' But, would it not add to its utility, occaſionally to publiſh ſome communications on the important ſubjects of breeding and managing live ſtock? The ingenious Peter Pindar ſays,

> 'For farriers ſhou'd write on farcies and the yellows,
> 'Farmers on lands, rams, cows, ſows, ploughs, and harrows.'

And with what he ſtates in theſe lines, I perfectly coincide; though no man living more heartily condemns other parts of his writings.

About twelve years ago, Sir John Sinclair, Lord Hopetoun, and ſeveral others, moſt laudably exerted themſelves, not only to introduce large flocks of ſheep, inſtead of kyloes, upon the northern hills, but to have thoſe ſheep of an improved breed, and ſuch as could produce finer wool than the common breeds of Highland ſheep: and I ſhall conſider myſelf much favoured, if any of your readers will communicate, for inſertion in your Magazine, an account of their ſucceſs; particularly, as to the produce of the Croſs between the Cheviot or any other Highland ewes, and South Down or Spaniſh rams;

rams; not only as to the increaſed value of the fleece, but as to the improvement in the form of the ſheep. Whether, where any of theſe deſireable objects have been attained, their conſtitutions have been impaired, or rendered unfit for Highland diſtricts; and, whether they have a greater propenſity to fatten, at an early age, than the original Highland breeds? If the mortality is greater among the croſſed breeds than among others, I ſhould be glad to know, at what period of their age the difference is greateſt? Whether the pure Spaniſh or South Down ſheep have been *fairly* tried upon any of our Highland paſtures, and with what ſucceſs? And in what degree the ſocieties for improving the breed of Cheviot ſheep, without croſſing, have attained their object? To increaſe the value of the fleece and the carcaſe, by improving the wool and the form of the ſheep, without rendering them unfit for high and expoſed paſtures, ſeems the beſt, or perhaps the only way, in which very extenſive diſtricts in this kingdom can be made more uſeful to the proprietors and the community. Draining, indeed, has been recommended, and extenſively practiſed; but I underſtand that ſeveral Highland farmers, of great experience and reſpectability, are now beginning to entertain ſome doubts as to its utility. The advantages of this practice, on wet paſtures, appear to me exceedingly obvious. But we ought to bend to facts; and, for my government, and that of others, I ſhall be much obliged to any of your experienced readers, if they will be ſo good as to favour me with their opinion on this ſubject, and with the reaſons which have led to the doubts I have mentioned.

The South Down ſheep have the appearance of hardy and well-formed Highlanders; but, notwithſtanding all I have heard in their favour, and all that has been wrote by Dr Parry, &c. in favour of the Spaniſh ſheep, I muſt beg leave to ſay, that I cannot yet believe any breed comparable to the new Leiceſterſhire, for *incloſed ſituations* and good land. I am well aware of the ſuperior value of the fleece of the Spaniſh breed, and of the increaſe made to it, by the diſtinguiſhed abilities of our manufacturers; but, until I receive a new light, I muſt conclude that that is the moſt profitable breed, even in a national point of view, whoſe *carcaſe and fleece* will raiſe the moſt money in a ſhort time, with a certain allowance of food, particularly when the difference is ſo great as that between the breeds in queſtion; the Leiceſterſhire being fitter for the butcher, and much heavier, at ſixteen to ſeventeen months old, than the other breeds, at near the age of three years; which is a

moſt important advantage, as the calls for human food are louder, and ought to be more regarded, than thoſe for *fine coats*. The partiality of breeders ſometimes throws obſtacles in the way of *fair* experiments; and I have heard, that even ſome breeders of the Cheviot ſheep have occaſionally drawn concluſions in their favour, after trying them with the Leiceſterſhire upon incloſed and productive lands. That the South Down ſheep may prove a uſeful breed upon inferior lands and expoſed ſituations, I think very likely; and that the Cheviot ſheep have been proved to be a valuable Highland breed, I readily admit; but, to inferior ſoils and Highland diſtricts, I would confine *both*; at leaſt, I ſhould imagine that I was purſuing very improper management, were I to keep them upon rich paſtures, when a ſupply of the Leiceſterſhire breed could be obtained.

About two or three months ago, I read in a newſpaper a challenge from a gentleman of the county of Durham, to ſhew the produce of five of his cows, of the ſhort horned breed, againſt that of any other five cows, in any perſon's hand in the kingdom, for 500 guineas. By what criterion they are to be judged of, I know not; but as it was ſuppoſed that neither *weight* nor *ſize* would be the mark of merit, ſome expectations were entertained that a moſt excellent variety of the Weſt Highland kyloe, or Galloway breed, would be their ſucceſsful competitors. The veteran owner, however, of the latter, (whoſe modeſty has hitherto prevented him from blazoning their merits), knowing the high fame of the Durham breeders, and the excellence of their cattle, cannot, I apprehend, be prevailed upon to ſhew his little beaſts; although they are extremely handſome; get remarkably fat upon a ſmall quantity of food in a ſhort ſpace of time; lay the fat very thick upon the rumps, fore chines, and other valuable parts; and are ſold by the butchers at one halfpenny to a penny per lib. higher than the beef of large cattle. Their not being brought to this ſhew, is the more to be regretted, as it is underſtood that ſome graziers and breeders, of great judgment and experience, have given an opinion highly favourable to the beſt breeds of kyloes and Galloway cattle, and declared that they have not met that attention which their excellence deſerves. On the proper criterion to judge of a breed of cattle or ſheep, and on the beſt method of curing, or preventing the diſeaſe in the paps or udders of cows, by which graziers often loſe ſeverely, I ſhall be very thankful for the opinion of ſome of your experienced readers.

Dec. 1801. ANGLUS PASTOR.

ORI-

ORIGINAL COMMUNICATIONS.

PART II.*

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

GENTLEMEN,

I promiſed, ſome time ago, to furniſh you with extracts from an Eſſay, tranſmitted to the Board of Agriculture, upon the beſt method of converting graſs land to tillage, and am extremely ſorry that the fulfilment of my promiſe hath been ſo long delayed. The fact is, the eſſay itſelf was expected back from the Board; but that reſpectable Body, probably intending to uſe it in ſome way themſelves, have not yet complied with the directions given upon this ſubject. I am therefore under the neceſſity of making the following extracts from the original ſcroll, which, of courſe, renders the queſtion more imperfectly inveſtigated. I entertain the hope, however, that the ſentiments expreſſed upon this branch of huſbandry may be acceptable to your readers, and likewiſe be the means of inducing ſome of the Board's other correſpondents to tranſmit their thoughts to you, reſpecting the important buſineſs under conſideration.

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'OLD MOTHER TERRA DELIGHTS IN VARIETY.'

THE above queſtion, under exiſting circumſtances, is of great importance; for, upon the iſſue of it, the public welfare,

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THE above queſtion, under exiſting circumſtances, is of great importance; for, upon the iſſue of it, the public welfare,

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fare, and the proſperity of agriculture, materially depend. It is generally underſtood by political œconomiſts, that Britain, on an average of years, does not raiſe a ſufficient quantity of grain for the conſumption of the inhabitants; which neceſſarily cauſes a great dependence upon foreign countries for making up the deficiency, and entails a heavy charge upon the nation, whenever a failure of the crop prevails to any extent. The object of the Committee of the Houſe of Lords, is therefore of a meritorious nature. If, by a partial change in our rural ſyſtem, the public could be ſufficiently ſupplied with the neceſſaries of life, the wiſdom, gained at the expence of two years ſcarcity, would not probably be too high purchaſed.

In the courſe of profeſſional practice, it has perhaps fallen to my lot to break up a greater quantity of graſs land than many in my line have done; conſequently, it may be preſumed, that what I am going to ſtate upon the ſubject will at leaſt deſerve ſome conſideration. Though not dreſſed in gaudy attire, or arranged according to the formal rules of compoſition, (circumſtances hardly reconcileable with the ſituation of the practical agriculturiſt), yet, if what I am going to urge throws light upon the buſineſs before the Board, or proves uſeful to the Public, theſe defects, I truſt, will be found comparatively of little importance.

From repeated obſervations upon Engliſh huſbandry, I have long entertained an opinion, that an immenſe national loſs is ſuſtained, in conſequence of ſuch large portions of land, eſpecially in the midland and weſtern counties, being excluſively kept in graſs; and that an addition to the ſtock of proviſions in the country, perhaps to the extent of one third, would be the infallible conſequence of breaking up theſe lands by the plough; while an equal advantage would be gained from laying down the old tillage lands to graſs, and renovating them by the plough, after they have been refreſhed and reſtored to fertility by a ceſſation of labour. That the old tillage lands are, in general, exhauſted and worn out, muſt be acknowledged by every perſon who attentively examines the ſeveral crops which they carry; and, that the old paſtures would produce as much graſs, after carrying a few corn crops, and being diſciplined by the plough, as they do in their preſent ſtate, I conſider as equally certain, though perhaps it will not be ſo unanimouſly acknowledged. The ardent deſire manifeſted by the greateſt part of proprietors, to preſerve their graſs lands, may have been

founded

founded upon cauſes originally good and ſubſtantial, though it is demonſtrable, that a total alteration of that ſyſtem would now be attended with infinite advantage, both to them and to the public. It would occaſion a vaſt increaſe of the neceſſaries of life: it would, in many inſtances, double the amount of rent-rolls: it would afford employment to an additional number of people; and, from the extraordinary quantity of manure neceſſarily produced, the moſt barren waſtes would be rendered fertile and productive.

The reſolutions of the Board, however, do not require the ſubject to be ſo extenſively inveſtigated. I propoſe, therefore, to confine myſelf entirely to the queſtion ſent to them by the Committee of the Houſe of Lords, *to wit*, In what way can graſs land be converted to tillage, and reſtored to graſs, after carrying a few crops of grain, without being deteriorated and injured? In offering my opinion upon this queſtion, I ſhall, in the *firſt place*, make a few preliminary remarks applicable to the propoſed converſion, in every ſituation and circumſtance: *2dly*, I ſhall diſcuſs the queſtion itſelf in five chapters, each comprehending the various proceſſes of labour neceſſary to be carried on upon the reſpective ſoils mentioned by the Board, from the time the land is broken up, till it is again ſown down with graſs ſeeds; and theſe chapters ſhall be ſubdivided into ſections, agreeable to the ſeveral articles ſpecified in the Board's advertiſement: *Laſtly*, I ſhall conclude with a general ſtatement of the advantages that may reaſonably be expected to proceed from adopting the meaſures recommended.

Land, which has lain for a conſiderable time in graſs, is, in every ſituation, with difficulty, brought into a proper arable ſtate; becauſe the roots of the natural graſſes retain ſuch a hold of the earth, that artificial plants cannot either thrive, or be productive, till they are completely eradicated or deſtroyed. This difficulty prevails in different degrees, according to the nature of the ſoil which is cultivated; for, upon light and mellow ſoils, a deſtruction of the graſs roots is, comparatively, attained with great facility, and corn crops may be gained for a ſeries of years at far leſs expence, than upon every variety of ſoils that are clayey, or incumbent upon a cloſe and retentive bottom. But though corn crops may, in the firſt inſtance, be more advantageouſly cultivated upon ſome ſoils than upon others; yet, no ſoil whatever can be reſtored to graſs without injury, far leſs in an improved ſtate, without being previouſly completely

ly ſummer-fallowed, or ſufficiently cleaned by a fallow crop, as the nature of the ſoil and other circumſtances require.

It is from neglecting this radical work, that graſs land, after being ploughed for corn crops, and then reſtored to graſs, is, in too many inſtances, conſiderably deteriorated by the previous converſion. The general richneſs of land that has been depaſtured with cattle and ſheep for a length of time, holds out a ſtrong temptation to thoſe who are in poſſeſſion of it to perſiſt in raiſing corn crops, till the ground is ſo foul that it is hardly practicable to clean it effectually in the courſe of a ſingle ſeaſon. In ſome caſes, this has led to a continuance of the ancient practice of leaving the land to ſeed itſelf; and, in others, to cauſe it to be dubbed with a thick covering of hay-ſeeds, which are ſeldom calculated to ſtock the ground with plants capable of returning a ſuitable produce. Even where the land has been fallowed, the ground, from being ſo dirtied beforehand, could not be thoroughly cleaned in one year; and hence ſmall ſeeds, ſuch as any of the varieties of clover, ſtand a chance of being exterminated.

It is conſiſtent with my perſonal knowledge, that many fields of old graſs land have been conſiderably injured, in conſequence of the plough being admitted; and this entirely from neglecting to uſe the neceſſary means for extirpating the aboriginal inhabitants. Similar circumſtances, in all probability, laid the foundation of that ſtrong averſion, entertained by the majority of Engliſh proprietors, againſt ſuch admiſſion: Nor does this excite ſurpriſe; for a good paſture field is certainly a treaſure that ought to be carefully guarded. What I contend for, is, that it is perfectly practicable to convert ſuch lands to tillage, and reſtore them to graſs, after carrying a few crops, without diſſipating the original treaſure contained in them. Ploughing the land, at proper intervals, will never reduce or curtail its natural value, provided the management, in the interim, be executed in what is called 'a huſbandman-like manner.'

When I firſt broke up old graſs land (about eighteen years ago), it appeared to me, that ſuch lands (they were chiefly of thoſe ſoils characteriſed as clay and loam) being in a very rich ſtate, were capable of carrying a round of corn crops, with common culture; and that it was early enough to fallow them, when they required to be invigorated by manure. Under the influence of this opinion, I fought on with crops of oats and barley alternately; which, from the quantity

quantity of labour required, occaſioned me, in ſome years, to miſs the barley crop almoſt altogether, while a heavy expence attended the different operations. Senſible, at laſt, that I was in a wrong path, I changed my ſyſtem entirely; and, by introducing ſummer fallow in the ſecond year, I can with confidence maintain, that the change has been attended with great advantage. In this way, the tenant is expoſed to the loſs attendant upon an unproductive fallow, perhaps three years earlier than by the other; but is amply repaid by the ſuperior crops produced in the ſucceeding years, independent of the diminution of labour during the time the land remains in tillage.

CHAPTER I.

'CLAY IN ALL ITS DISTINCTIONS, AND SOILS TOO STRONG OR TOO WET FOR TURNIPS.'

EVERY variety of clay land is difficult to cultivate, though, in favourable ſeaſons, under the hand of an expert cultivator, ſome of theſe varieties are perhaps more productive than the richeſt free ſoils. The grain produced upon them, is generally of ſuperior quality; and they are conſtitutionally adapted to the growth of wheat, which may be raiſed to a greater extent than is practicable upon light lands. The management, however, is always expenſive; and, in particular years, the crops are very critical and hazardous. Hence, leſs rent can be paid by the tenant, in proportion to the value of the produce, than when he poſſeſſes ſoils of a leſs expenſive and hazardous nature.

No kind of ſoil requires to be oftener renovated by the plough than clay; eſpecially, if it be of a thin nature, or incumbent upon a firm cloſe bottom. The beſt graſs, in ſuch caſes, is got during the firſt year after being ſown down, while the roots are creeping upon the ſurface, and not obſtructed by the poverty and ſterility of the ſubſoil. An improvement, comparatively ſmall, is gained by keeping this variety long in graſs; and the greateſt profit is uniformly derived from an alternate ſyſtem. Rich clays will progreſſively improve, while kept in graſs, though in an inferior degree to thoſe ſoils of a drier and leſs obſtinate nature. Hence, all clays ought to be often broke up with

with the plough, and reſtored again to graſs, after being cropped for a few years.

Section I.

'Rotation of Crops proper to be adopted upon ſtrong Soils.'

When clay land is converted to tillage, the firſt crop, in every caſe, ought to be oats; and this grain, being an excellent forager, will uniformly yield a greater return than any other, till the ſurface is completely reduced, and the natural graſſes are extirpated. As the goodneſs of the crop depends much upon the fineneſs of the mould, every exertion ought to be uſed in harrowing *well*: ploughing before froſt, is the chief mean of accompliſhing this operation effectually. In harrowing, the horſes ought to be driven repeatedly along the ridge, till the ſurface is in ſome meaſure broken, when *croſs-harrowing* may be reſorted to. I have ſeen old graſs lands that required eight or nine double times of the harrows, before they were put in any thing like a decent ſtate; but this ſeldom occurs, unleſs in ſeaſons where little froſt has prevailed, or where the ſoil is ſtrongly bound together with the roots of the graſs, or other ſubſtances which have pre-occupied it.

The moſt advantageous practice is, to ſummer-fallow the land during the ſecond year, which, upon clay ſoils, I deciſively recommend as abſolutely neceſſary, both for the intereſt of the tenant, and the future management of the ground. Repeated trials have confirmed the ſentiments offered upon this head; and I am ſatisfied that heavy land cannot be brought into a proper cultivateable ſtate, or corn crops profitably raiſed, even during the ſhorteſt courſe, unleſs this radical meaſure is reſorted to. Beſides, I have always found the grub worm a dangerous foe in the ſecond and third years, and indeed during every ſubſequent year, till the land was fallowed. This deſtructive inſect abounds particularly in graſs fields of the variety now under conſideration; and I know no other mode of extirpating it, but by ploughing the ground in the Summer months, or paring and burning the ſurface. Another circumſtance, that occaſions an early fallow to be neceſſary, is the quantity of thiſtles and other trumpery, which uſually occupy all graſs land, effectually preventing artificial crops from thriving, ſo long as they remain undeſtroyed. I may only add, that the fallow ſhould be given in the moſt perfect ſtyle; perhaps ſeven or eight furrows will be required, the firſt

before

before Winter. Rolling, harrowing, and hand-picking, till the ſoil is well pulverized and cleaned, ought not to be ſpared; and a dreſſing of lime may be adminiſtered as early in the ſeaſon as circumſtances will permit. Dung will not be required, unleſs the ſoil is of an inferior variety; for, by lying ſo long in graſs, a ſtore of vegetable and animal ſubſtances will be accumulated ſufficient for carrying on the growth of plants for ſeveral years.

If the above operations are all completed in due time, and the ſeaſon continues favourable, wheat may be ſown; but, in caſe circumſtances prevent ſowing earlier than the middle of October, it will be fully more advantageous to delay that work to the Spring months; as the land, from being completely wrought, will be apt to throw out the young plants, unleſs they are well rooted before Winter, when vegetation experiences a temporary ſtoppage. From repeated trials, I can ſafely recommend February as being a good month for ſowing wheat upon well dreſſed land, and, if it were not for the chance of miſſing a ſeed time then, I would ſay, that the ſowing of wheat upon fallow, under the above circumſtances, ought always to be delayed till the Spring ſeaſon arrives.

The crop, which, with the greateſt propriety, can be taken after wheat, is Beans, drilled and horſe-hoed. The working of this crop will reſtore the land to the like good order as when ſummer-fallowed, if due care is beſtowed upon the different hoeings. Two ploughings ought to be given before the beans are ſown; the firſt acroſs, and the ſecond in length of the ridge. The intervals neceſſary for admitting a complete horſe-hoeing, are twenty-ſeven inches; and the ground ought to be finely harrowed before the beans come above the ſurface.

The laſt crop that I recommend, is Barley, accompanied with graſs ſeeds, for which either two or three ploughings may be given, according to the ſtate of the weather. I am much inclined to think, that a good barley tilth is the beſt bed for graſs ſeeds, eſpecially if the land is to remain for a long period in graſs. When ſeeds are ſown among wheat, they ſeldom get a ſufficient hold of the ground; and though they may thrive for one crop, they are apt to die out in the ſecond or third ſeaſon. If this be the caſe with them when ſown with fallow wheat, matters muſt be much worſe, when ſown with wheat ſucceeding beans. In nine caſes out of ten, graſs ſeeds will not thrive under ſuch management.

According

According to the above rotation, not more than five years are required for accompliſhing the ſeveral proceſſes of converting graſs land to tillage, and laying it down again in an improved ſtate.—I ſay *improved*; for, if the different operations are executed in a huſbandman-like manner, the ground will carry as much graſs, if not more, than it could do previous to the converting of it to tillage. But the improvement would ſtill be greater, if ſeven years elapſed before it was returned to graſs, inſtead of five years, as now deſcribed. If wheat was taken the fifth year, inſtead of barley, and a ſecond dreſſing of ſummer-fallow given during the ſixth year, accompanied with a moderate quantity of dung, and the ground ſown in the ſeventh year with barley and ſeeds, the improvement would, in every reſpect, be complete, and the land greatly benefited by the extenſion of the rotation *.

Section II.

' *Draining.* '

If the land propoſed for tillage, contains either ſpouts or ſprings, it is abſolutely neceſſary, to inſure good crops, that the

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* *Note by one of the Conductors.*

While we decidedly recommend this mode, as being beſt calculated to promote the intended object, we cannot avoid noticing a remark made upon the review of Colonel Fullarton's letter, given in our laſt Number; and that chiefly becauſe it proceeded from a quarter eminently entitled to much reſpect upon every queſtion connected with the improvement of practical huſbandry. Our readers will remember, that the Colonel propoſed to ſow his graſs ſeeds without the intervention of ſummer-fallow, which our reviewer reprobated; and recommended a five courſe ſhift, viz. oats, fallow, wheat, beans, barley with graſs ſeeds. It is obvious, that a ſhift of this nature is as extenſive as the Board's advertiſement will permit; and that, though continuing aration for a greater number of years would be highly beneficial, particularly by allowing time to prepare the land for graſs ſeeds, yet that it is inconſiſtent with the terms of the queſtion propoſed to public conſideration. In this light the buſineſs is viewed by the author of the above eſſay, and in much the ſame way was it conſidered by the public in general. We underſtand, however, that it was remarked by the gentleman alluded to, that the courſe recommended by our reviewer, was incomplete; becauſe the ground would be in ſuperior condition if a ſecond fallow was given, and graſs ſeeds ſown with barley upon that fallow: a point upon which, abſtractly conſidered, there can be no diſpute. But did he reflect, whether ſuch an extended rotation was practicable under the terms of the Board's advertiſement, or whether two fallows would be allowed by Engliſh landlords, nine tenths of whom conſider one unproductive fallow as too much? Before an opinion can be judiciouſly given upon any ſubject, all its bearings ought to be cautiouſly inveſtigated, leſt an error be committed ſomething ſimilar to that of an eminent land doctor, who ſagaciouſly recommended, that a nine-courſe ſhift ſhould be practiſed during a ſix years leaſe!

the ſame be properly drained, either previouſly to the oat crop, or in the ſeaſon when ſummer-fallow is given. This is almoſt a preliminary ſtep to every improvement, and the neglect would prove vaſtly detrimental to every other operation.

All clay lands require to be carefully '*griped*' each time they are ploughed, ſo as the ſurface moiſture may be inſtantly carried off. They hold water like a cup, and are greatly injured whenever this neceſſary practice is neglected.

Section III.

'*Paring and Burning.*'

I cannot recommend paring and burning upon a clay ſoil, unleſs where the ſurface carries a rough coarſe ſward, and cannot be eaſily brought into cultivation by the ordinary modes of labour: But I beg leave to ſay, that I give an opinion with diffidence upon this head, not being experimentally acquainted with theſe operations, as they are ſeldom practiſed in this country, and not neceſſary upon the lands I have cultivated.

Section IV.

'*The depth to which graſs land ſhould, at firſt breaking up, be ploughed.*'

The firſt ploughing ſhould be given tolerably deep; or, in the ploughman's language, the furrow ſhould have a ſhoulder, ſo as the harrows may get hold of it, and raiſe a ſufficient mould for covering the ſeed. Perhaps caſting the ridges, *i. e.* ploughing two at a time, is the moſt effectual way upon heavy lands, and great pains ought to be uſed in forming the open or water-furrow betwixt the ridges, ſo as the ground may remain dry. The land ought to be carefully turned over by the plough, and not left ſtanding on edge, which is very prejudicial to the harrowing, and encourages the growth of graſs and weeds among the crop. Ploughing old graſs land is at all times a ſevere operation, and tries the abilities of the ploughman, and the ſtrength of his cattle, more than any other branch of aration.

Section V.

'The ſorts and quantities of graſs ſeeds for each kind of ſoil, and whether to be provided by landlord or tenant.'

If the ground is intended for immediate paſture, the ſeeds ought to be ſown thick, ſo as a cloſe bite may be got at once. Paſture graſs can hardly be too thick, as the conſtant feeding upon it prevents the cloſeneſs of the roots from being in the ſmalleſt manner injurious to their growth. When land is intended for hay, a different management is neceſſary, or the graſs would not grow to any length. Upon rich clays for paſture, I would recommend 12 lib. white clover, 4 lib. red ditto, 4 lib. trefoil, and three pecks of good rye graſs, to be ſown, per acre; and theſe ſeeds, I venture to ſay, if properly covered, will give a cloſe ſward, at once, and afford different graſſes at different periods of the ſeaſon. Upon inferior ſoils, it may be proper to ſow a greater quantity of rye graſs and trefoil, and leſs white clover. Perhaps a buſhel of rye graſs, 8 lib. trefoil, 8 lib. white clover, and 4 lib. red ditto, will afford as much graſs as theſe lands can produce.

If the tenant is to poſſeſs the land after being laid down to graſs, he may ſafely be truſted with providing the ſeeds; but if the land is to revert to the proprietor at the expiration of the term when aration ceaſes, then the graſs-ſeeds ought, under every conſideration, to be furniſhed by him, the tenant being taken bound to harrow or cover them in with his laſt corn crop.

Section VI.

'Whether it is beſt to mow or feed the graſs in the firſt year after laying down.'

I apprehend, that to mow or cut the graſs the firſt year, would be utterly deſtructive to its future improvement; beſides, different ſeeds are required in theſe different caſes. If the land is intended to remain in graſs, I am decidedly of opinion, that the ſcythe ought not to be introduced.

Section VII.

'The manuring which may be neceſſary.'

I have already ſaid, that, if the land is to be ploughed for only five years, no manure is neceſſary, unleſs a dreſſing of lime is to be conſidered in that light. Upon old graſs land, lime

lime operates with double energy, that it does in every other caſe, as it has ſuch a quantity of matter to ſtimulate. The application of calcareous ſtimulants is therefore of the greateſt importance; and a full doſe, perhaps to the extent of 250, or even 300 buſhels, may be profitably adminiſtered. Lime, however, differs ſo much in ſtrength, that an inquiry ought always to be made into its qualities, previous to the application.

If the rotation is to be extended to ſeven years, a dreſſing with dung is recommended in the ſixth year. The neceſſary quantity of well rotten dung may be ſtated at fourteen double loads *per* acre, each weighing about one ton, which, if properly ſpread and incorporated with the earth, will be fully ſufficient.

Section VIII.

'*The principle on which an increaſe of rent ought to be eſtimated, where permiſſion may be granted to break up old paſture now under leaſe.*'

The principle, upon which rent ought to be eſtimated, muſt vary according to the ſoil, condition, and ſituation of the land propoſed to be broken up. It is obvious, that the expence of labour and management, in every caſe, will be nearly equal, unleſs where draining is required; whereas a very material difference may take place in the quantity, as well as in the value of the produce. One general principle, however, may be laid down, *to wit*, that old paſture lands are capable of paying double rent for five years after being broken up, provided that the ſtraw or fodder is at the diſpoſal of the tenant. According to the rotation mentioned for five years, no manure is neceſſary, (conſequently, the whole ſtraw would be at the tenant's diſpoſal), except it be for the thin clay ſoils; and thoſe, it is believed, will be among the firſt that are broken up. If the rotation ſhall be extended to ſeven years, and this is earneſtly recommended, then the manure neceſſary in the ſixth year, will be equal to one half of the ſtraw that is raiſed during the rotation; of courſe, the rate of rent ought to be leſſened.

When I ſpeak of double rent, it is proper to explain, that under this is included the burdens payable by the tenant, ſuch as tithes and poor rates. It is obvious, that the former would be increaſed, at leaſt, in a threefold degree; for, if taken in kind, five buſhels *per* acre would, in all probability, be exacted from each crop. It is, no doubt, the ſame to the tenant, whether this *quantum* of corn, or the value thereof,

is paid to the landlord or tithe-holder; but it would affect, in a material degree, the rate of rent he was otherwiſe capable of paying to the former. If the rent of the paſture land may, upon an average, be calculated at 40s. *per* acre, including all public burdens, then the ſame land is capable of paying 4l. *per* acre when converted to tillage; but if five buſhels *per* acre were exigible for tithe, taking them only at 4s. *per* buſhel on an average of years, then the landlord's ſhare of the tillage rent would amount only to 3l. *per* acre, upon the ſuppoſition that the old tithe was ſufficient for defraying the increaſed rate of other public burdens. If tithes were valued before the land is broken up, it is clear that 15s. would be gained by the landlord upon each acre, on the ſuppoſition that the graſs tithe, *modus*, or agiſtment, does not exceed 5s. *per* acre, which is preſumed to be more than what is preſently paid.

[To be concluded in next Number.]

FOR THE FARMER'S MAGAZINE.

LETTER IX.

Strictures on Farm-Management near London, in a ſeries of Letters to a Friend.

(Continued from Vol. II. No. 8. page 378.)

Auguſt 1799.

I SHALL now endeavour to point out the plan which I ſhould be diſpoſed to follow, for improving an eſtate ſimilar to yours, if it were my property, or if I held it by a long leaſe, with freedom to manage it according to my own judgment.

Three chief rules of management, I hold to be the foundation of all good huſbandry; and, upon theſe, the whole of what follows is grounded.

1. Nature, or the ſoil, loves variety in its productions; at leaſt, experience ſhews, that ſoils always produce moſt abundantly when the crops they are made to bear are varied.

2. Give the ſoil as much as poſſible, and take from it as little as you can; that is, manure it frequently and judiciouſly, both by paſturage, and by dung and other manures, and never take ſucceſſive crops of grain.

3.

3. Keep your ſoil always as free from weeds as poſſible, and never permit them to ſhed their ſeeds. This is to be done by regularly interpoſed fallows and drilled crops, and by induſtrious hand-weeding.

Two diſtinct objects muſt be attended to, in the management of land ſuch as yours, under an improved ſyſtem of huſbandry, to bring it into its utmoſt ſtate of productibility, and to preſerve it continually in that moſt profitable ſtate. The ſoil which has been exhauſted by conſtant tillage, muſt be reſtored to its productiveneſs, by means of paſturage; and that which has become foul, by continual haying or croping, muſt be cleaned by proper tillage. In both caſes, the greatly increaſed produce, which will immediately follow from the adoption of this improving ſyſtem of huſbandry, will more than overpay any extraordinary expence which may be incurred; and afterwards, this improved productibility will be kept up continually in its utmoſt vigour, at leſs expence than is occaſioned by the preſent exceſſively inferior ſyſtem.

In both caſes, an indiſpenſably requiſite preliminary is, that the fields be effectually freed from internal wetneſs, by underdraining; and completely preſerved from the ſtagnation of ſurface water, by laying the ridges or lands judiciouſly, and by careful water-furrowing at every ſucceſſive operation, as already directed, when treating of the fallow proceſs.

In an improving ſyſtem of managing land which has been exhauſted by long tillage, the firſt object is, to get it made as clean from weeds as poſſible, and then to lay it off in graſs, that its productive powers may be renovated by means of paſturage. For accompliſhing the former of theſe great objects, every year as large a portion of this land as there is dung to go over completely, is to be fallowed in the moſt perfect manner poſſible, as already directed. After this thoroughly cleaning fallow, wheat is to be ſown in the uſual manner.

Or, perhaps, it might be better to ſow the wheat in drills, having intervals of ſix or nine inches between the rows. In this way, there is opportunity left to hand-hoe the intervals, and to hand-weed the rows. Another way has been practiſed in ſome places, which is, to dibble the wheat in regular rows, having the ſame intervals as in drilling; and this equally admits of hand-hoeing and weeding. In both of theſe, a great deal of ſeed is ſaved, conſiderably more than is ſufficient to cover the additional expence. In both, a kind of horſe-hoe is uſed by ſome huſbandmen, to clean the intervals; and by that means to ſave, in a conſiderable degree, the expence of hand-

labour. I have here mentioned theſe modes of ſowing, but without attempting to enter into the details of either practice, or to give any opinion reſpecting their advantages or diſadvantages, as I have had no experience of either. In one inſtance only, I have ſeen a growing crop of drilled wheat, which looked extremely well, and which the farmer told me anſwered excellently.

In whichever way the wheat has been managed, the land muſt be ſown with graſs ſeeds in the following Spring, before the wheat has planted out, or *tillered*, as we call it, ſo as to cover the ground too cloſely. When the wheat has been ſown in the uſual manner by hand, the graſs ſeeds muſt be covered by means of a light harrow. If the wheat has been either drilled, or dibbled in rows, the graſs ſeeds will be effectually covered by the hand-hoeing. In both caſes, the land ſhould be rolled; but that muſt not be done while the ſoil is in any degree wet.

The kinds and quantities of graſs ſeeds which I would recommend for laying your land off in paſturage, are, as follows, to each ſtatute acre: A buſhel and a half of clean dreſſed London rye-graſs, * twelve pounds of white clover, twelve pounds of trefoil or yellow clover, and two or three pounds of rib graſs, or narrow leafed plantain. Parſley is ſaid to be exceedingly grateful to ſheep, and even to have a very powerful effect in curing them of ſome diſeaſes to which they are liable, particularly the rot. It might therefore be adviſeable to add to the foregoing paſturage mixture, two or three pounds of parſley ſeed for each acre.

All theſe ſeeds muſt be very carefully mixed together before ſowing. Some huſbandmen mix the whole parcel together at once. Others think it more adviſeable to mix only at a time as much as will ſow about an acre. Theſe allege that, as the clover ſeeds are much heavier than the ſeeds of rye-graſs, the former are apt to ſink to the bottom of the heap, and that the land is thereby unequally furniſhed with the different kinds; that which is firſt ſown having too little, and that which is laſt, too much, of the clover ſeeds.

When all are mixed together at one time, it muſt be done on the barn or granary floor, and the heap frequently turned over

* *Note by one of the Conductors.*

This quantity of rye-graſs is too much by one third, eſpecially when accompanied by ſuch an uncommon proportion of clover. N.

over with ſhovels, to mix them intimately together. When they are to be mixed only in ſmall parcels, the different kinds are taken to the field in ſeparate bags, and a proportional quantity of each is mixed by hand in the ſowing ſheet, each time the ſower is ſupplied. A ſtill different practice was formerly followed, in ſome parts of this country. The rye graſs ſeed was firſt ſown, by itſelf, over the whole field; and then the other kinds of ſeeds, by going a ſecond time over the land.

For two or three ſucceſſive years, after the wheat has been cut, the land which has been laid off in graſs, in the manner juſt directed, is to be paſtured with ſheep. One cow or bullock to every five or ſix acres, in addition to the ſheep ſtock, may not be amiſs. It is obſerved, that animals, of different kinds, affect the rank graſs, which we call *teth*, that grows where the dung of another kind has dropped; but avoid that which grows among the dung of their own kind. Beſides, different kinds of animals prefer different kinds of plants. By this mixture of ſtock, the paſture will certainly be eaten to greateſt advantage.

In the management of paſturage, I would recommend a ſucceſſional flock, and a ſeries of paſture fields, ſo as to give three ſhifts. Thus, the fattening flock is to get the top of the paſture firſt broken upon. Before the paſture is eaten too bare, this flock is to be removed into a ſecond field of freſh graſs; and is to be followed on the firſt field by the keeping flock. Before the ſecond field is too bare, the fatteners are to be removed into the third, and the keepers into the ſecond. While theſe two flocks are employed in this ſhift, in eating the ſecond and third fields, the firſt field has time to get again into full herbage. It is certainly needleſs to enlarge on this courſe, as the principles and practice are both ſufficiently obvious.

One practice, in the management of paſture lands, I would very ſtrongly recommend. I have uniformly followed it myſelf, and am thoroughly ſenſible of its beneficial effects. It is, regularly to cut down all weeds, that ſpring up in the fields in ſpite of the flock, before they get into ſeed. This is by no means expenſive; as two or three children are ſufficient to keep down the weeds of a large paſture farm. And it is an old, and true proverb in huſbandry, that '*once ſeeding cauſes ſeven years weeding.*'

The three years paſturage, above recommended, will very greatly ameliorate the ſoil, and enable it to produce heavy and profitable corn crops in future. And, after it, the land

may again be taken up to advantage, in a regular courſe of huſbandry, according to the following plan, which may be termed the improving rotation.

In early Spring, or during Winter, the paſture ley is to be once ploughed, throwing two ridges or lands into one, unleſs very ſubject to be flooded by ſurface water. On this, ſow oats. But, in my opinion, your ſpecies or variety of oats is very bad. I would recommend that you ſhould get, for your firſt crop, a quantity of what are here called Angus oats, ſufficient to ſow the whole of this newly broken up ley. In after years, the produce of this will ſerve very well to ſow again; but you ought every year to procure one quarter of the ſame kind, as new ſeed. The produce of this, ſet apart, will ſuffice for ſowing the whole oat crop of the ſucceeding year. And this practice, regularly followed, will always inſure you a good kind of oats, and an abundant produce. Beſides, the produce of theſe Angus oats will ſoon bear a high price in your neighbourhood, when the farmers around come to obſerve their ſuperior productiveneſs, and far more valuable quality.

After the oats are ſown, they muſt be thoroughly harrowed in; the harrows going alternately end-long of the lands or ridges, and acroſs them *; and finally finiſhing off, by end-long harrowing. In the next place, water-furrowing and croſs-trenching, wherever neceſſary to carry off the ſurface water, muſt be carefully performed. Indeed, this neceſſary operation is never to be neglected, even for a day, on your ſtrong retentive ſoil.

If you propoſe to cut your oat crop with the ſcythe, the land muſt be finiſhed off by a heavy ſmooth roller. This lays the ſurface ſmooth and even, and admits the ſcythe to act with freedom and eaſe. I do not, on the whole, approve of mowing any kind of grain; but it may anſwer fully better for oats, than for any other kind. For wheat, beans, or peas, it ought never to be attempted.

In this improving courſe, after the oat crop is removed from the ground, it is to be ploughed as ſoon as poſſible, as a preparative for a perfect fallow; and this is to be conducted in the manner already directed in a former letter.

On this fallow, well dunged, wheat is to be ſown, as before; and, in the Spring, graſs ſeeds for paſture, as formerly directed.

In

* *Note by one of the Conductors.*

Upon clay ſoils, it is neceſſary to harrow twice in length, before croſſing can be attempted; ſometimes oftener. N.

In a former copy of this letter, as originally tranſmitted to you, I adviſed to follow this wheat crop with drilled beans, and theſe with barley, previous to ſowing off the ſecond time into paſture: But, on more mature reflection, I now think it would be greatly preferable to get the land again into paſture, as quickly as poſſible. This ſecond courſe of paſturage, perſiſted in as before for three years, will have completely reſtored the land to its full vigour, for producing every kind of crop to the utmoſt advantage; and it will for ever continue ſo, if managed on proper principles; which ſhall be afterwards explained as clearly as I can. To render theſe ſucceſſive operations more obvious, which may very properly be termed the improving courſe for old tillage lands, I ſhall enumerate them in the following liſt:

1. year, Perfect fallow, dunged.
2. — Wheat, ſown with paſture ſeeds.
3. — Paſture.
4. — Ditto.
5. — Ditto.
6. — Oats.
7. — Perfect fallow, dunged.
8. — Wheat, ſown with paſture ſeeds.
9. — Paſture.
10. — Ditto.
11. — Ditto.
12. — Oats.

I would recommend to follow exactly the ſame mode of huſbandry, for improving the common-field land, after it has been incloſed and ſubdivided into regular fields. The nature of the ſoil, in your common-field lands, ſeems to me preciſely the ſame with that of the home fields, or old incloſures; only leſs productive at preſent, owing to having been even worſe cultivated. But, by the ſyſtem of improving huſbandry, I am convinced they will become equally good, after the double rotation, with the intervening paſturage. The only difficulty with them, will proceed from the want of fences for confining the paſturing flock. But, as you have great abundance of bruſh and other wood, for temporary fences, to protect the young hedges while growing; all the difference neceſſary in their management will be, not to put into them any cows or bullocks, until the hedges have grown ſtrong enough to protect themſelves.

I omitted, in its proper place, while treating of the ſtock proper to be put into your paſture fields, to mention, that on no account ſhould horſes ever be paſtured along with ſheep; as long experience proves ſatisfactorily, that ſheep are extremely

tremely liable to have the rot communicated to them, by feeding on the rank graſs, or *teth*, which grows after horſe dung; unleſs that graſs has previouſly undergone a few nights froſt. The firſt ſymptom of the rot, is the engendering of a ſingular ſpecies of worm in the livers of the ſheep; and I have had experience of theſe being produced in a ſound flock, by having paſtured in a very dry and healthy field along with horſes.

However, in caſe of a ſcarcity of other paſture, ſufficiently luxuriant, for completing a parcel of ſheep already almoſt fit for market, there can be no objection to putting them, for a few weeks, into ſuch a paſture, as no injury whatever is done to the mutton, merely by a few of theſe worms. The keeping flock muſt not, on any account, be allowed to eat of ſuch graſs, until after hard froſt; as it is very ſeldom ſheep recover, when the rot once takes hold of them.

Having now completed, to the beſt of my judgement, my directions for improving your old tillage land, I ſhall ſubjoin two tables, to render the ſubject as diſtinct as poſſible. In your preſent huſbandry, your tillage lands are arranged into four *breaks*, or diviſions, and undergo a ſucceſſion of fallow, wheat, barley, beans; and ſo round again. I have diſtinguiſhed each break or diviſion, by different letters. The firſt table gives a complete round of theſe four diviſions, for the four years preceding a ſuppoſed commencement of improvement; and the ſecond table ſhews how the improving courſe will go regularly on for twelve ſucceſſive years, after its commencement. In the ſecond, I have aſſumed the land to be arranged in ſix breaks or diviſions, by which there will always be an equal quantity of each ſpecies in each ſucceſſive year. Of theſe ſix breaks, one is brought into the propoſed courſe of improvement in each ſucceeding year. More could not be brought forward in this manner, without inducing confuſion in the farming operations, and a very conſiderable increaſe both in men and horſes. Beſides, dung could not be procured, ſufficient for any conſiderable increaſe of fallow.

In filling up the years, previous to the commencement of the improving courſe, in the breaks, marked with the letters B, C, and D, I have aſſumed, that theſe are to be managed according to the old practice of the neighbourhood. It might perhaps be better, to throw ſuch of theſe as are to be any length of time before the improving courſe commences, into paſture graſs, after the barley crop, as is marked under the letters E and F; breaking up the paſture, in the year previous

to

to the regular improving fallow, for a crop of oats. In this way, not only will the land ſo much ſooner receive the advantages already ſtated to be deriveable from paſture, but ſo much paſture will be yearly formed to ſerve inſtead of that portion of the preſent old graſs land, which is to be annually broken up for tillage, according to the plan for that purpoſe, which is to be attempted in my next. *R r r.*

	A	B	C	D
1796	Fallow	Beans	Barley	Wheat
1797	Wheat	Fallow	Beans	Barley
1798	Barley	Wheat	Fallow	Beans
1799	Beans	Barley	Wheat	Fallow

	A	B	C	D	E	F
1800	Fallow	Beans	Barley	Wheat	Barley	Barley
1	Wheat	Fallow	Beans	Barley	Pasture	Pasture
2	Paſture	Wheat	Fallow	Beans	Pasture	Pasture
3	P.	Paſture	Wheat	Fallow	Oats	Pasture
4	P.	P.	Paſture	Wheat	Fallow	Oats
5	Oats	P.	P.	P.	Wheat	Fallow
6	Fallow	Oats	P.	P.	P.	Wheat
7	Wheat	Fallow	Oats	P.	P.	P.
8	Paſture	Wheat	Fallow	Oats	P.	P.
9	P.	P.	Wheat	Fallow	Oats	P.
10	P.	P.	P.	Wheat	Fallow	Oats
1811	Oats	P,	P.	P.	Wheat	Fallow

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Experiments on Lime Huſbandry.

'Lime is the baſis of every agricultural improvement.'

BARON HEPBURN'S SURVEY OF EAST LOTHIAN, QUARTO EDITION, p. 138.

GENTLEMEN,

SEVERAL uſeful papers, upon the application of lime, have recently appeared in your Magazine; and, with permiſſion, I propoſe to throw my mite of information into the general ſtock of practical knowledge already accumulated upon that very important branch of huſbandry. Laying theory aſide, I ſhall confine myſelf entirely to *facts*; and, without attempting to explain the manner in which lime operates upon the ground, which would be only travelling through the field of conjecture, I ſhall merely detail the reſults of ſeveral trials made upon the lands in my poſſeſſion, in the courſe of a pretty extenſive practice.

It is proper to premiſe, that a good deal of uncertainty prevails with agriculturiſts, reſpecting the application of this article; and that much diſpute has taken place among thoſe who have applied it only to one kind of ſoil, or who have not uſed it under different circumſtances. Some have contended, that lime ought to be applied only when it is in a hot powdered ſtate; and that when it becomes *effete*, the effects are comparatively trifling and unavailing. Others maintain, that graſs land is the beſt bed for the reception of lime, while many of our moſt enlightened farmers ſtrenuouſly affirm, that it is moſt judiciouſly uſed when the land gets a complete ſummer-fallow. It would not be difficult to prove, that each claſs of diſputants, in the view they take of the ſubject, are equally in the right; and that they only condemn the ſyſtem of others, becauſe their own has turned out to be ſucceſsful. The object of this paper is to ſhew, that, in every caſe where the land is conſtitutionally diſpoſed to receive benefit from a calcareous dreſſing, *that is*, when it is refreſhed by graſs, or enriched by dung, it is of little importance, in reſpect of operation, whether lime is applied *hot* or *effete*; upon graſs land, or upon fallow; and that convenience ought chiefly to be ſtudied,

died, when the most proper time for bestowing the article is to be ascertained. In point of economy, there can be no doubt, but that lime is most thriftily used, when laid upon land hot from the kiln: This mode also lessens the expence of labour considerably; consequently, the practice of using it when *effete* is more expensive. It is obvious, however, that a choice of season is not always in the farmer's power; and that imposing necessity often obliges him to lay on lime when completely *effete*. Repeated trials, however, have convinced me, that its operations are equally beneficial in the one state as in the other; though the expence in the last case, as already said, is greater than in the former. With regard to the other branch of dispute, whether land in grass, or land in fallow, is the most proper bed for the reception of lime, I am humbly of opinion, that the difference is immaterial. If grass land is clean, and if lime can be got forward at the time, the application will be as efficacious upon it, as upon the richest and best wrought summer-fallow.

That these things are not matter of opinion, I mean to shew, by detailing the results of the trials made to ascertain the facts. To render these details more perfect, I shall mention the nature of the surface and subsoil upon which the several trials were made, and explain the state of the ground at the time; and, when necessary, the management practised for a series of years afterwards. I am aware, that much of the weight which a paper of this kind will carry, depends upon the character of the author; and though I have not the vanity to offer my name to the public, through the channel of your Magazine, which has hitherto contained only anonymous papers; yet any gentleman, who wishes to receive information upon this point, may apply to your publisher, who is instructed accordingly.

Having premised these remarks, I proceed to state the results of a few of the various trials made upon different kinds of soil, in the course of twenty years practice. I shall add nothing more in this place, but that they abundantly corroborate the doctrine laid down by the respectable gentleman, from whose works the motto affixed to this paper is extracted.

Field, No. 1.—Soil chiefly composed of thin clay, some of it approaching to a moorish quality, *i. e.* mixed with peat earth; the whole incumbent upon a subsoil retentive of moisture.

This field had been in grass for several years, but yielded very poor returns. It was fallowed without taking any corn crop;

crop; and the lime, which was brought forward during the Summer months, was applied in the following Spring, previous to the ſeed furrow being given. At that time, it was completely *effete*, and would hardly go from the ſhovels. About 45 Linlithgow barley bolls, or 280 Wincheſter buſhels, as originally laid down, were applied to each Scotiſh ſtatute acre.

Firſt year—The crop was oats, but little benefit was diſcovered from the lime.

Second year—The ground begun to ferment, which ſhowed, that the lime was in action. The huſbandry of flax being then in vogue, I was induced to try it upon this field; and the crop was excellent, both in reſpect of flax and ſeed.

Third year—It was ſown with grey peas after two furrows, which returned great bulk of ſtraw, but not much grain. The clay part of the field, was now quite looſe and free, while the mooriſh ſoil ſeemed more compact and firm.

Fourth year—Red wheat was ſown, which turned out a bulky crop, though the ſeaſon was adverſe. The ſtraw was hard, bright, reedy, and of great length. I am convinced, that the greateſt quantity of dung, applied at once, would not have produced ſuch a crop.

Fifth year—The field was ſummer-fallowed, but no dung was applied.

I am aware, that it may here, with juſtice, be urged, that a great error was committed in withholding dung at this ſtage; and I acknowledge, that a doſe of manure, had circumſtances permitted, could not have been more beneficially beſtowed. In vindication of the management practiſed, I can only ſtate, that, at the period in queſtion, dung was a very ſcarce article upon the farm; and that many fields would not crop at all, if it was withheld. The one under conſideration, appeared quite capable of carrying ſeveral more crops, without aſſiſtance; conſequently, viewing the economy of the farm as a whole, it was thought preferable to act in the manner deſcribed. Many things are eligible in general management, which cannot be individually executed; and, like as in public affairs, a partial evil muſt often be committed, to promote the general good.

Sixth year—The field was ſown with oats, and produced a heavy crop, both of ſtraw and corn. Graſs ſeeds were ſown with the oats.

Seventh year—Depaſtured the field with cattle. The graſs was but indifferent, which is a common circumſtance upon new

new limed land; at leaſt, where a heavy doſe is given. This induced me to plough it again, in the ſucceeding Spring.

Eighth year—Oats were ſown, which yielded a decent crop.

Ninth year—The field was thoroughly ſummer-fallowed and dunged, at the rate of ſixteen double loads to the Scotiſh acre. Wheat was ſown.

Tenth year—The crop of wheat excellent, being not only bulky, but of fine quality.

Eleventh year—Oats and graſs ſeeds were ſown, and the ground ſurrendered to paſture. Since that time, it has been a few years under corn; and though the produce of theſe crops cannot, by any exertion, be made to equal thoſe which are enumerated; yet the ſoil is evidently much improved in every reſpect, when compared with its original ſtate, previous to the lime being applied.

Field, No. 2.—A real mooriſh ſoil, incumbent upon a cloſe bottom, which had been over-cropped after lime, by a former tenant.

I begun with a ſummer-fallow, and applied a part of the ſame kind of lime which anſwered ſo well upon field No. 1. The lime was laid on during a hard black froſt, at the rate of 35 bolls, or 210 buſhels per acre, and was then *effete*. Oats were ſown; but the crop was a poor one, and the after attempts were not more ſucceſsful. The ſtalk of the plant generally *ſinged* and decayed, after the ſtrength of the ſeed pickle was gone; which is a ſure proof of ground being worn out with lime. This will always happen, though in different degrees, upon all ſuch land, unleſs a conſiderable quantity of dung is beſtowed; which unfortunately, in this inſtance, was not the caſe.

Field, No. 3.—The ſoil of a mooriſh quality, but ſuperior to that of No. 2.

Fallowed the field out of graſs, and applied lime hot from the kiln; but the conſequences were much the ſame as mentioned in the preceding inſtance. The oat crop looked briſk at firſt, but decayed daily, as the ſtrength of the pickle was exhauſted. Tried dung with a ſecond fallow, when the lime appeared to operate in a trifling degree, but not to that extent as to repay the expence incurred.

Field, No. 4.—Soil partly thin clay, the remainder of a ſoft ſandy nature, but all upon a wet bottom.

This

This field had lain, for a great many years, in graſs, and diſplayed no ſigns of having been previouſly limed. Applied the lime upon the graſs ſurface, when it was *effete*, and ploughed for oats: The crop good. The lime did not come into full action till the third year, when peas were ſown; and, for a number of years afterwards, the different crops taken were not inferior to thoſe of the beſt infield.

Field, No. 5.—Soil chiefly a ſoft loam upon a wet bottom; which, at any rate, had not been limed ſince the ridges were levelled and ſtreighted.

Summer-fallowed this field, after a crop of wheat, and dunged it ſubſtantially, as it appeared to be in an exhauſted ſtate. Applied lime hot from the kiln, at the rate of 40 bolls, or 240 buſhels per acre, which operated immediately. It is now ſixteen years ſince the application; during which time, the field has been only three years in graſs, and yet its effects have not ceaſed.

Field, No. 6.—The ſoil a ſtrong loam incumbent upon clay, which had carried five crops of grain after being ploughed from old graſs.

Summer-fallowed and dunged this field: applied lime alſo, which was laid on hot from the kiln, in the month of Auguſt, after ſix ploughings were given. The quantity applied was forty barley bolls *per* acre; which, in leſs than a month, occaſioned a fermentation of the ſoil, ſomething ſimilar to what is produced by yeaſt upon unbaken bread. In one reſpect, the improvement made upon this field by lime was conſpicuous. Barley could, with difficulty, be raiſed before lime was uſed; whereas, afterwards, fine crops of this grain were procured with facility. The ground was likewiſe much eaſier ploughed and harrowed than formerly, which is always a ſure token of an improvement being accompliſhed.

Field, No. 7.—The ſoil generally a thin ſharp loam, a great part of it incumbent upon a cloſe bottom. It had been three years in graſs, and was ſown down in good order; therefore, was a proper ſubject for receiving lime upon the ſward. I had reaſon to believe that lime had been applied by a former tenant, but was not certain. After harveſt, laid on from thirty-five to forty bolls *per* acre, not thinking the ſoil required a heavy doſe. It was partly hot, and partly *effete*, as generally happens at that ſeaſon of the year.

Firſt year, oats were taken; the crop good. Second year, drilled beans, with intervals of twenty-ſeven inches; the ground being twice ploughed before ſowing, and four times horſe-

horſe-hoed; crop middling. Third year, wheat after one ploughing, which yielded a full average crop. Fourth year, under ſummer-fallow; to which twelve double loads of dung per acre were given. Fifth year, in wheat; crop excellent. Sixth year, in drilled beans, which were managed as above. Seventh year, wheat; crop above mediocrity. Eighth year, barley, with graſs ſeeds, after three ploughings; which, though the ſeaſon was adverſe (1799), turned out a decent crop. Ninth year, under graſs, which was paſtured with cattle, and not inferior to any in the country.

It may be objected, that the above is hard cropping. It may be ſo; but I am far from acknowledging that hard cropping, in certain caſes, is inconſiſtent with good farming. The expence of lime is ſo great, (with me, it has been from 4l. to 8l. *per* acre, all expences included), that a neceſſity for hard cropping may be ſaid to be thereby created. Beſides, this neceſſity is increaſed by the general ſhortneſs of leaſes, which impedes every permanent improvement; and, in the uſage of lime, calls for the utmoſt exertion of the tenant, that he may be reimburſed his extraordinary outlay and trouble.

Field, No. 8.—Soil chiefly loam, though of different varieties, and moſtly incumbent upon a cloſe bottom.

This field, which conſiſted of fifty acres, had been cropped for time immemorial; and, when I entered to the farm, was ſo tired with carrying wheat, that it was ſcarcely worth the ploughing. I therefore laid it down to graſs with all convenient ſpeed. In this ſtate, it remained five years, when it was broke up again; thirty acres having been limed upon the ſward, at the rate of forty barley bolls *per* acre. Some of the lime was laid on three years before ploughing, ſome of it two years, and the remainder a few days before the ploughs entered. Part of it was hot, part of it *effete*; but the effects over the whole field, even in the firſt year, were nearly the ſame; if there was any difference, the ridges laſt limed fermented moſt, but the crop was equally bulky wherever the lime had been applied; though, upon the twenty acres unlimed, the inferiority was evident. This ſatisfied me that it was not neceſſary to apply lime to graſs land one or two years before it was broke up, as inculcated by ſeveral writers upon huſbandry; a practice, at any rate, not reconcileable with economy, as much of the lime is waſhed off the ſurface, and carried away by rain before the ground is ploughed.

Not wiſhing to encroach too far upon your Work, I ſhall delay the ſequel of theſe trials to a future occaſion; when a few words ſhall be added, reſpecting the uſe of lime, mixed with rich earth, upon thin clay and mooriſh ſoils, which I have found to anſwer well, after the naked article had proved abortive. As a concluſion, I ſhall draw ſeveral plain and practical inferences from what I have communicated.

I am, Sir, yours, &c.

ARATOR.

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Obſervations upon Huſbandry, in a Journey to London.

GENTLEMEN,

IN two journies to London, lately, I had occaſion to ſee a great deal of common-field and waſte land under incloſure; and much of it bearing heavy corn crops, which I remember formerly to have been almoſt totally unproductive. This excellent reform of Engliſh landed property, is making rapid ſtrides; but, in ſeveral places, I obſerved a ſhameful neglect of the young fences on theſe new incloſures, though in moſt they ſeemed carefully attended to. On one of theſe newly incloſed commons, I had the opportunity of ſpending two days laſt harveſt, and of ſeeing very diſtinctly all the operations, both there and in its neighbourhood. I regret much that I did not take notes of particulars; but I was ſtrongly impreſſed with one remarkable fact, that all the proceedings were wretchedly contaminated by the old common-field ſyſtem of overcropping, total inattention to the eradication of weeds, and an attachment to the antiquated practice of folding. In one of the extenſive Engliſh barns, I ſaw a crop that for ſome time I could find no name for; but, at laſt, diſcovered it to have been intended for beans, with a mixture of above two thirds of wild oats. In another, was what they called a thraſhing machine, from which the corn, chaff, and ſhort ſtraws, fell on the floor in one indiſcriminate heap of confuſion. Six of *Small's ploughs*, and an excellent winnowing machine, procured from hence two years before, and which had been uſed to purpoſe one year, under the inſpection of an

an excellent agricultural manager from this country, were thrown aſide as uſeleſs, for want of knowing how to employ them. Nothing cut with the ſickle but wheat, and that *knee high*. Barley, oats, peas, beans, mowed by the naked ſcythe; and all, except clean beans, raked into heaps, and ſtacked looſe, in vaſt *ſows*, without *leats*. No ſown clove. and rye-graſs, unleſs the former for hay crop or ſeed. In ſhort, on new taken in land, a ſyſtem of *deterioration* with a vengeance prevailed, under the idea of making the land *pay* for *improvement*.

So exceedingly powerful is the influence of habitual cuſtom, that I was indiſputably informed by thoſe who practiſed it, that nine crops are not unuſually taken conſecutive to fallow; and that fallow is not broke up from the former ſtubble, till the June of the year in which it is to be ſown with wheat. No wonder then, that 16 Wincheſter buſhels the Engliſh acre, was conſidered an average crop!!

To one perſon, a conſiderable farming proprietor, I endeavoured to demonſtrate the advantages of the alternate ſyſtem, of corn and paſturage; but prejudice and cuſtom had ſo far pre-occupied the avenues of his mind, that every reaſoning, and every fact I could adduce, were altogether uſeleſs. This man's land was clay, and his draught invariably four horſes in length. When endeavouring to ſhew the advantages of two horſes abreaſt, without a driver, as capable of working even ſuch ſoil between the wet and dry, he objected, that their land was in ſuch poverty it would not plough at all in that ſtate, as it then *fled before the plough*, inſtead of turning over. I tried to convince him, but ineffectually, that land ſo impoveriſhed, and producing ſuch miſerable crops, could not pay for ſeed and labour. The *reſt* of paſturage ſeemed altogether unknown, except laying down, in full dirt and complete exhauſtion, to perpetual hay meadow; then, indeed, it becomes ſomewhat enriched by ſurface manure.

Turnip crops, if ſuch they might be called, for turnips they had none, or ſuch only as we would plough down for miſery, never received the aſſiſtance of the hoe, except ſo far as what the ſheep-herd, in the intervals of the folding ſyſtem, could contrive to beſtow on perhaps twenty to forty acres broad-caſt. What weeding they got, was by turning in the lambs, which, they ſaid, eat the weeds, and refuſed the turnip leaves; for there were no roots, or next to none. Beans, too, were ſimilarly managed. Sheep are turned in, to eat the

wild oats, though ſometimes theſe are intentionally reſerved to feed the horſes during Winter.

In ſome parts of Yorkſhire and Durham, I ſaw tolerably good turnips; ſome drilled, but moſtly broad-caſt, though generally very inferior, even in boaſted Kent. Of this laſt county, indeed, I can ſay but little, having been only a ſmall way into it, and that in an unfortunately foggy day. In your laſt number, an Engliſh correſpondent adduces drilled turnips at *twelve inch intervals*: But truly, at that ſmall diſtance, effectual tilth and cleaning cannot poſſibly be given. His *hot-fur* mode of ſowing, on which he lays ſo much ſtreſs, is not one jot more effectual for guarding againſt drought, than ours in Berwickſhire, Northumberland, Roxburgh, and Eaſt Lothian; in which, each half day's ploughing, which we call a yoking, or the Engliſh, a journey, is inſtantly drilled up, in all its native moiſture, and the ſeed thoroughly buried, which is perfect hot-fur, with the manure freſh below.

In the beginning of this letter, I have mentioned folding with diſapprobation; not, however, for the firſt time in your Magazine. I find one of your correſpondents, in laſt Number, defends the ſyſtem, but without the ſhadow of an argument: for all he can ſay, is, that he could not convince the celebrated Bakewell of its propriety, and, *vice verſa*, that Bakewell could not convince him! Will this advocate for the folding ſyſtem venture to ſay, he can, from one folded ewe, ſell the lamb for twenty-four ſhillings, and feed off the ewe to 24 lib. a quarter in that ſeaſon; or ſell the wedder hog, ſo folded, at near four pounds, by the middle of the enſuing Summer, beſides his fleece; as I know to have been the caſe this year, on a large ſcale? When he can anſwer this queſtion in the affirmative, I ſhall become a folder; not ſooner. We fold, to be ſure, but it is on full food; on turnips in Winter, and on rich young clover in Summer. In both, the ſoil gets all the benefit of rich fed ſheep; the ſheep all the benefit of rich feeding. And the farmer has high benefit in both caſes; a quick market for his ſheep, and conſtant fertility of ſoil for corn and graſs.

If theſe deſultory remarks can be of any uſe in your valuable Magazine, they are entirely at your ſervice; and I am only ſorry my avocations oblige me to ſend them in ſo crude a ſtate. I am, &c. R.

BERWICKSHIRE,
30. *Nov.* 1801.

TO

TO THE CONDUCTORS OF THE FARMER'S MAGAZINE.

Letter from a Gardener concerning the Gooſeberry Caterpillar.

GENTLEMEN,

I AM a gardener in the neighbourhood of Edinburgh, and, being much troubled with the gooſeberry worm upon my buſhes, was directed by a friend to try a *récipe*, mentioned in your Magazine, of alum and tobacco liquor; but it had no effect. I was next informed of a new cure for this evil in your laſt Number, therefore purchaſed it immediately. But, alas! the medicine offered, is inapplicable to the diſeaſe; my buſhes were deprived of their leaves in Autumn, by the young worms hatched during the heat of Summer; and I am now greatly diſtreſſed, from a conviction that my next year's crop of fruit will inevitably be much reduced.

All former cures have been directed againſt the inſect upon the buſhes; but your medicine, if I underſtand the directions right, can only be applied to the deſtruction of the worm itſelf. Whether my comprehenſion is inaccurate, or your directions inexplicit, I cannot aſcertain; but, in the view I have of the matter, the cure offered cannot remove the evil of which I complain.

Dr James Anderſon, among his other valuable lucubrations, hath wrote on this ſubject, and points out different methods of forcing the caterpillars from the buſh to which they cling. I recommend his Eſſay to your peruſal, and requeſt your further advice on the premiſes. I am, &c.

A GARDENER.

BRANCH II.

Review of Agricultural Publications.

General View of the Agriculture of the County of Mid-Lothian, with Obſervations on the Means of its Improvement. Drawn up for the conſideration of the Board of Agriculture and Internal Improvement, from the Communications of GEORGE ROBERTSON, *Farmer at Granton, near Edinburgh; with the Additional Remarks of ſeveral reſpectable Gentlemen and Farmers in the County.* Nicol, *&c. London*; Creech, *Edinburgh*; Archer, *Dublin. Printed*, 1795.

THIS Report upon the Huſbandry of Mid-Lothian, being the firſt of the kind which appeared in Scotland, was tranſmitted by the Board to the other ſurveyors, as a proper model for ſuch works. In our humble opinion, it was well calculated to ſerve the intended purpoſe, as it diſplays a minute accuracy in the inveſtigation of facts, and is executed in a clear, conſpicuous manner. The author alſo appears endued with comprehenſion of mind equal to the deduction of inferences from the wideſt and moſt extenſive premiſes.

A firſt publication, upon a ſubject in ſome meaſure new, labours, however, under conſiderable diſadvantages. The efforts of the author are circumſcribed within the ſolitary ſuggeſtions of his own mind; and it cannot be expected that the ſubject ſhould preſent itſelf to an individual in all that variety of reference, which muſt occur after it hath been ſubmitted to the diſcuſſion of numbers, each led, by his peculiar habits of thinking, to ſurvey it under a different point of view. The diſadvantages will be found alſo to admit leſs of counterbalance, when it is conſidered that the drawing up of the reports, was rather a taſk impoſed upon the reporters, than a voluntary effort, to which they were impelled through internal predilection. We premiſe theſe obſervations, for the purpoſe of juſtifying ourſelves in expreſſing regret that the work was not delayed to a later period, ſo as we might have had

had the ſatisfaction of obtaining the opinion of ſo able a reporter, upon a variety of topics connected with the intereſt of agriculture, which have more recently become the ſubjects of inveſtigation.

Before going farther, we muſt ſolemnly proteſt, that we are but little diſpoſed to place much confidence in political arithmetic, or agricultural calculation, whether proceeding from Arthur Young Eſq. Secretary to the Board, or the author of this work, both of whom deal extenſively in theſe articles. From the very nature of ſuch ſubjects, there ariſes ſo great a latitude of aſſumption, as to the *data* upon which calculations are founded, that we verily believe, in many caſes, the reſult is firſt determined in the author's mind; the *data* of the calculation then aſſumed; and, if the calculation is not found to yield the reſult previouſly determined, the *data* are altered, till the reſult is found deducible from them by fair calculation *.

By entering this proteſtation, we do not mean to inſinuate, that it is generally applicable to Mr Robertſon's calculations, though partially it may be ſometimes applied. In general, his *data* are not mere aſſumptions, but facts aſcertained, as far as accurate inveſtigation could aſcertain them, and extended from analogy, where there was no acceſs to inveſtigation. We believe that his reſults are entitled to more credit, and may be conſidered as approximating to the truth, more than moſt of thoſe that have fallen in our way.

Having thus diſcharged a preliminary duty, we proceed with pleaſure to analyze this general view of Mid-Lothian huſbandry.

The county of Mid-Lothian lies nearly in latitude 56 degrees north; yet the climate, though cold, is not unfriendly to vegetation. From a table of rain, it appears, that, upon an average of eight years, from 1785 to 1792, including both years, the greateſt number of rainy days in one year were

* We confeſs we have an eye to the calculations of Triſtram Shandy's father, as to the propriety of cultivating the Ox-moor with aunt Dinah's legacy, inſtead of applying it to the purpoſe of ſending his oldeſt ſon Bobby to his travels: "Whenever my father took pen and ink in hand, and ſet about calculating the ſimple expence of paring and burning, and fencing in the Ox-moor, &c. &c. with the certain profit it would bring him in return—the latter turned out ſo prodigiouſly, in his way of working the account, that you would have ſworn the Ox-moor would have carried all before it. For it was plain he ſhould reap an hundred laſts of rape, at twenty pounds a laſt, the very firſt year—beſides an excellent crop of wheat, the year following—and the year after that, to ſpeak within bounds, an hundred—but, in all likelihood, an hundred and fifty—if not two hundred quarters of peas and beans—beſides potatoes without end." Rev.

175, and that the medium annual depth of rain was 25.75 inches: foggy and misty days, whose moisture affected not the pluviometer, could not be reckoned in the account. A thermometrical table is also given, which seems very inaccurate: we suspect errors of the press, and confess we do not understand it. Hay harvest is performed in July; corn harvest generally lasts from the 20th August till the middle of October. Spring corns, as oats, beans, peas, are sown from the middle of February till the middle of April; barley the whole of May. Wheat is sown in October and November; sometimes, after summer-fallow, so early as 1st September; and, under other circumstances, as late as Christmas, with good effect. The soil is very various, and all the kinds much intermixed; as, clay, sand, loam, gravel; *all probably convertible*, as our author well observes, *into loam, by culture*. None of the lands lye on a dead level; and there is every where a ready descent for water.

The contents of the county, our author rates at 183,400 Scots acres, or 230,400 English; of which, about one third are inaccessible to the plough; leaving a remainder adapted to plough culture, of about 120,000 acres. The most elevated pasture lands are the Morefoot and the Pentland hills; the former consisting of 50 square miles, from 1400 to 1800 feet above sea level; the latter, of 40 square miles, the highest elevation extending only to 1600 feet above the sea. The richest arable land lies in a stretch along the sea-coast, of about 15 or 16 miles in length from east to west, by from 6 to 8 miles in breadth from north to south, and contains about 50,000 acres. Farther from the coast, and extending towards the hills above mentioned, and at from 600 to 900 feet elevation above sea level, there may be reckoned about 70,000 acres of arable land, of pretty good soil; though interspersed with patches of moor and moss, and under a climate less friendly to vegetation, from superior elevation.

Property seems to be pretty much subdivided in this county; a circumstance, to a certain extent, highly favourable to the improvement of the lands *. There are about 542 landed estates

* To a certain extent, subdivision of property is favourable to improvement. If the masses into which it is divided are of sufficient extent to afford such opulence to each proprietor, as gives him the opportunity of being enlightened; then, certainly, the concentration of the superintendance of each perpetual proprietor over his particular mass, will insure over the whole a greater share of that

eſtates in the county. As a ſpecimen of their ſize, they are divided by our author into 6 claſſes, *viz.*

Eſtates above	2000l.	Scots valuation	-	20
from	1000l.	to 2000l.	- -	25
from	400l.	to 1000l.	- -	49
from	200l.	to 400l.	- -	49
from	100l.	to 200l.	- -	67
under	—	100l.	- -	320
				530

The above claſſification does not comprehend a few very ſmall proprietors. Suppoſing the valuation to bear the ſame proportion univerſally to the real rent, as in thoſe ſituations where the proportion is known, 1ol. Scots of valuation is equivalent to 7l. 18s. 10d. Sterling of real rent, (page 210): And, as the whole valued rent of the county is 191,054l. 3s. 11d. Scots, the whole real rent ought to amount to 151,737l. Sterling. The valuation of the county amounts to about a twentieth of the whole of Scotland.

Rather better than a third of the landed property is entailed; and about a twentieth of it is veſted in corporations—two modes of holding property, unfavourable, in our opinion, to improvement; as we conceive, that the ſtrongeſt ſtimulus which can be held out to excite the energy of the improver to the moſt ſubſtantial and laſting improvements, is, the full, complete, and unlimited command of the ſubject; or a property *excluſively perſonal, perpetual*, and, at ſame time, *transferable.*

From our author's calculation (page 53) of the population employed in agriculture, the proportion betwixt farmers with the people they employ, to the people employed in agriculture by the proprietors, is as $8\frac{2}{3}$ to one. Hence, it would ſeem probable, that about one ninth of the lands is occupied

that permanent improvement which ſuits thoſe who have a perpetual intereſt, than what is to be expected from the divided attention of overgrown proprietors, whoſe maſſes are larger than their capacity of ſuperintendance. This ſubdiviſion may, however, be carried too far; and we could inſtance particular pariſhes in Scotland, where the landed proprietors almoſt equal, in number, the whole proprietors in Mid-Lothian county. Where land is ſo minutely ſubdivided, the proprietor enjoys that degree of independence which is ſufficient to ſopite ſtrenuous exertion; while, at ſame time, his ſtraitened circumſtances exclude him from general information, and enlarged views. Such petty proprietors conſtitute, in general, a claſs the moſt ignorant, arrogant, and inefficient, of any other claſs to be found in civilized ſociety. REV.

occupied by the proprietors, and eight ninths are let upon leaſe to profeſſional farmers. The leaſes are generally of 19 years endurance; ſometimes, if the lands let are in an unimproved ſtate, 21, 25, or 31 years; or, in ſome caſes, for a very few years, when the lands are let for a temporary purpoſe, ſuch as old paſture, let in tillage for the extirpation of fog.

The farmers are claſſed by our author under four deſcriptions. *1ſt*, Speculators from the capital, who depend not on farming, but enjoy a command of money from their other profeſſions, and daſh at farming, as well as other ſubjects of ſpeculation: theſe ſpeculators raiſe the rent of land, and reduce the rate of farming profit below the level of that of capital embarked in other profeſſions. From extravagance of plan, and want of neceſſary minute attention to practical detail, theſe ſpeculators are generally unſucceſsful farmers.

2d, Perſons who, having made money in other profeſſions, retire to farms; from an original predilection, which they have all along indulged, for a country life and rural occupations. This claſs are generally poſſeſſed of enlarged views; and though at firſt they may be ſomewhat awkward in the direction of the details of practice, they generally become among the moſt intelligent and ſucceſsful of farmers.

3d, A few who by frugality and induſtry have raiſed themſelves from the lower orders to the claſs of farmers. Extenſive views are not to be expected in this claſs: By cloſe imitation, however, of the practice they have learned, joined to thoſe habits of rigid economy which they retain, ſeveral of this claſs are ſucceſsful, and make money.

4th, The original farmers of the county, among whom, the profeſſion has continued, from father to ſon, for a number of generations; this claſs comprehends three fourths of the whole. Among theſe, the hill farmers, who have little intercourſe with ſociety, retain the manners of the Scots as they exiſted in the days of Oliver Cromwell. Thoſe in the low country, from their unremitting intercourſe with the capital, and with one another, in a ſituation of near neighbourhood, from their acceſs to circulating libraries and newſpapers, &c. at an eaſy price, are in general well informed. A thirſt of curioſity is excited among them; and many of the more opulent gratify this curioſity, by making tours through different counties, to ſee all the varieties of farming practice. In their varied intercourſe with ſociety, they acquire a taſte for more of the elegancies of living; and can by no means confine themſelves

to

to that rigidly penurious parſimony which prevails in the hilly diſtrict. With ſuch habits, together with the unremitting competition for land, from all varieties of ſpeculators from the capital, notwithſtanding of the enlightened energy which almoſt univerſally prevails among them, this claſs find it exceedingly difficult to add to their capital, and to raiſe themſelves above that ſtation in which they are left, each, by his forefathers.

Our author properly obſerves, p. 52.

'There is perhaps no profeſſion whatever, which gives ſuch a ſmall return for the ſtock employed in trade, and the knowledge and application neceſſary, as does Agriculture in the vicinity of a great town, where, from the great competition for land, ariſing from the continual influx of noviciates from the city, who are eager to become farmers, the profits of the real huſbandman are reduced to the loweſt degree of recompenſe. Thus, while it may be obſerved with what rapidity fortunes have been lately here acquired, not only in the higher profeſſions, but even in the lower mechanical arts, there is hardly an example of a farmer being able to raiſe himſelf above the level of his former ſtation, although the huſbandmen here conſiſt of a body of men three times more numerous, and poſſeſſing a ſtock in trade ſix times greater than that of any other diſtinct profeſſion whatever.'

Mr Robertſon ſtates the profit of farming capital, inclusive of the expence of the farmer's family maintenance, at 9l. 13s. 9½d. *per cent.* upon the farming capital of the whole county at an average; but, in the neighbourhood of Edinburgh, at only 7l. *per cent.*

We are convinced, that the return from farming capital in this county, is much leſs than that derived from capital embarked in moſt other profeſſions. The evil to the farmers, we alſo believe to be irremediable, as originating in circumſtances of permanent endurance and operation. We diſcern not, however, any public diſadvantage as the reſult. The only reſource for theſe intelligent low-country farmers, is, ſucceſſive emigration to leſs improved diſtricts, where their capital, their induſtry, and their ſuperior ſkill, will yield to themſelves a more grateful return, and, to ſuch diſtricts, a ſuperior cultivation.

Having already ſtated our general opinion as to political arithmetic and agricultural calculation, we ſhall, with little farther comment, preſent our readers with ſome of Mr Robertſon's general reſults.

The

The diſtribution of the population in the county, he ſtates as follows, viz. That in the hill diſtrict, 1000 acres are, at an average, occupied by 5 families; in the moorlands, by 20 families; in the lowlands, by 44 ditto.

The extent of the arable farms, is ſeldom leſs than 100 acres, or more than 300. Large farms are the common ſubject of ignorant popular outcry, as inimical to population. Mr Robertſon gives, as a random inſtance, the difference, in this point, of his own farm of Granton, conſiſting of 285 acres, as it was poſſeſſed 50 years ago by 3 farmers, and as afterwards occupied by himſelf alone. In the former caſe, the labour was performed by 33 horſes; and the families kept upon the farm, were only 9. At preſent, the whole horſes employed, amount only to 14; and there are no leſs than 16 families employed upon it.

We think it proper, here, to remark, that Mr Robertſon ſeems particularly happy in his mode of combating abſurd popular prejudices; ſo as to lead us to regret that he had not fallen upon more of them, of ſet purpoſe, inſtead of merely taking them up in notes, as they incidentally came in his way. As ſpecimens of his talents in this reſpect, we ſhall give ſome quotations from the work.

When ſpeaking of farm-houſes and offices, he ſays, p. 40—

'It was alſo very common, in times ſtill more remote, to have a number of theſe farm-houſes placed together in a village, generally in the vicinity of the laird's houſe or caſtle, the more readily to ſerve for his protection, or to protect one another from thieves, or other banditti, with which the country was infeſted.

'Among the many improvements which have been made in the preſent century, it is none of the leaſt, that the internal police of the kingdom has become more effective; the bands of robbers, and other vagrants, have been extirpated, private property more completely protected, and the peaceful inhabitants of the country have been enabled to apply themſelves to their vocations, in ſecurity, and without alarm. It has become no longer neceſſary that the whole farmers on an eſtate ſhould be cooped up in the ſame village. They may now ſettle, each in the midſt of his own farm, in a manner much more to the advantage of the farmer, and more favourable to the embelliſhment of the country. This has, however, been productive of no little grief of mind to the declaimers againſt the preſent times, who never perceive any thing in an alteration but what is ruinous. They deplore the remains of the farm-houſes in the different villages, and the ſuppoſed conſequent depopulation of the

the country; never adverting, that the inhabitants are only removed to a better ſituation than what they formerly enjoyed.'

'The farm-houſe and offices ſtill are generally diſpoſed in the form of a ſquare; in ſome caſes, open at the ſide oppoſite to the houſe; and in others, bounded by a low wall, or a ſet of ſheds. The houſe is generally two ſtories in height; the apartments commonly 5 or 6, (beſides kitchen, dairy, larder, &c.); finiſhed in a neat ſtyle, with a proper elevation of ceiling, and diſpoſition of light. The barns are uſually 20 feet wide, the walls 8 or 10 feet high, the length in proportion to the ſize of the farm; holding from 50 to 100 bolls of corn in the ſtraw at a time. They are commonly divided into two parts at leaſt, that different kinds of grain may be thraſhed at once; in ſome inſtances, there is a loft above the thraſhing place for holding corn.'

In repelling the abſurd imputation, indiſcriminately thrown out againſt farmers in general, by ignorant town ſpeculators, as to ignorance, obſtinacy, and irrational blind adherence to the cuſtom of their forefathers, he very properly ſubjoins the note, foot of page 45.

'It is even to be doubted, if, in any age, or in any country, the practice of agriculture has been in blind conformity alone to the maxims of antiquity. In the moſt unpoliſhed diſtricts, there are generally good reaſons for the preſent practice, in the preſent circumſtances, independent of the reſpect due to old maxims; but theſe local circumſtances are commonly overlooked by prejudiced or ſuperficial obſervers; and hence the ill-founded and indiſcriminate cenſure in which they indulge.'

The prejudices againſt incloſing are alſo very juſtly ridiculed, in note, foot of page 82.

'Turning arable lands into paſture, or from one ſpecies of ſtock unto another, which is thought to have a tendency to depopulate a country, is not peculiar to incloſures; for we have heard the greateſt clamour that has yet been raiſed on that ſubject, proceed from a quarter of the country (the Highlands), where incloſing is certainly not very prevalent, and where, indeed, it was not ſo much as alleged to have been a cauſe for complaint. Yet many people, otherwiſe intelligent, give into this popular theme of declamation againſt this mode of improvement, as if it were poſſible, that whatever tends to meliorate any particular diſtrict, could be injurious to the general proſperity, or, that a too great propenſity to lay lands into paſture, (like to every other ſpeculation too far carried), ſhould not operate

operate its own remedy naturally from being overdone. A nation of ſhepherds is no more to be apprehended, than a nation of tailors.'

From page 61 to page 67, we have a figured caſe of the detailed ſtatement of profit and loſs upon a farm in the vicinity of the capital, which is made the baſis of other calculations, as to general profit and loſs through the county. The articles exhibited, appear ſtated with judgement; and the diſtinction is accurately drawn betwixt the articles of expence, which muſt be conſidered as falling under the title of current charges, and thoſe which muſt be ranked under the head of capital advanced. It is however evident, that great latitude of ſuppoſition may be taken, without offence againſt probability, in the ſtatement of the expence, or profit of articles, varying in quantity from the variation of ſeaſons, and in price from the variations of market. Such calculations are therefore exceedingly fallacious; and we cannot help taking notice of an error, into which the author ſeems to us to have fallen. In page 67th, he ſtates the whole that the farmer obtains, in recompenſe for his profeſſional knowledge, perſonal labour, and unceaſing attention, over and above the legal intereſt of 5 *per cent.* for his capital embarked, at merely 22l. 17s. 3¼d.; and that upon a farm ſuppoſed to conſiſt of 190 Scots acres, held at an yearly rent of 475l.; and upon which he has embarked a capital of 1189l. 18s. 3¼d. In the details of ſtatement, the produce of each acre of the farm is ſpecified, and its price ſtated. The produce is then diſtributed among the various expences which it ought to meet, viz. the rent, the intereſt of the capital, and the current expences; after which, there reſults the above overplus for the farmer, of 22l. 17s. 3¼d. But we muſt obſerve, that no part of the produce is deſtined, in our author's ſtatement, to meet the yearly expence of the maintenance of the farmer's own family; although, in the ſtatement of capital advanced, this maintenance is ſtated (p. 63, Art. vii.) at 41l. 11s. 3d. for the eleven months that they reſide, from the time of entry, before they receive any return from the farm; or at 45l. 10s. 5¼d. yearly. If this however had been ſtated, as it ſhould have been, againſt the produce, it is evident that the farmer, inſtead of gaining 22l. 17s. 3¼d. annually, above the legal intereſt of his capital, muſt fall ſhort of that intereſt by 22l. 13s. 2d. yearly; and if the intereſt of the purchaſe-money of his 200l. worth of furniture, (mentioned in Note p. 63, as not taken into account),

or

or even its mere tear and wear were reckoned, his loſs muſt be ſtill more conſiderable. With a very ſmall variation of ſtatement, either in diminution upon the various articles of expence, or in augmentation upon the returns of produce, we confeſs that the matter might be eaſily adjuſted; and that, meanwhile, the ſtatement would appear upon paper equally ſightly, and equally probable as before. We only take notice of this error, to ſhew the general fallaciouſneſs of ſuch calculations, through which even a gentleman of Mr Robertſon's accuracy could be deceived. *

Notwithſtanding of this trivial error of only 45l. 10s. 5½d. in a long detailed ſtatement of articles of a moſt inconſtant and variable value, amounting, on each ſide of the account, to twelve and thirteen hundreds of pounds, (which, we know, Mr Robertſon could have very eaſily rectified, had he adverted to it), we do think, that his *data* are as probable, and may give reſults as near to the truth, as any we have been accuſtomed to ſee founded upon in ſimilar calculations. We confidently therefore proceed to lay before our readers ſome more of Mr Robertſon's ſtatements, in the belief that they are near approximations to the truth.

Statement

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* We beg leave here to relate an adventure betwixt a country gentleman, who was alſo a cloth-merchant, and his carpenter, which took place on the confines of Tweedale and Clydeſdale, and for the authenticity of which we can appeal to ſome of our readers in that quarter, who have often heard the carpenter triumphantly tell the ſtory, for the credit of his own invention. The gentleman had obſerved his carpenter at a funeral in coloured clothes, and immediately propoſed to him to ſend out a remnant of black cloth for a coat, that he might appear with more decency on ſuch occaſions in future. The carpenter, who was not in circumſtances to give ſuch a commiſſion, conceiving it was intended as a preſent, thanked him kindly, telling him he would be obliged to him for ſending it. The coat accordingly was ſent; and in due time the day of annual reckoning came, when the year's wright-work was to be ſtated againſt rent, with money at different times advanced, &c.

Luckily for the carpenter, the gentleman's account was firſt produced; when, to the other's aſtoniſhment, the black remnant ſtruck his eye, as an article of charge againſt him. After fumbling in his pockets for his account, the carpenter, with many apologies for his ſtupidity, pretended he had left it in another pocket when he changed his clothes. Another day was fixed for ſettling their accounts. Meanwhile, the carpenter fell to work upon his account; and, by adding a trifle of charge here and there, to ſuch articles as could moſt readily bear it, without becoming glaring, he, at laſt, after repeated trials, ſo enlarged its dimenſions, that it completely ſwallowed up the black remnant, with ſo little offence to probability, that it paſſed without challenge. REV.

Statement of the Capital employed in Agriculture, from p. 69.

	Scots Acres.	*Capital p. Acre.*	*Amount of Capital.*
In the Low Country	60,000	L. 6 5 0	L. 375,000
Moorlands	60,000	2 10 0	150,000
Hills	60,000	0 6 3	18,750
Total acres	180,000	*Aver. cap.* 3 0 5	*Tot. capital* 543,750

In pages 211, 212, 213, 214, the author enters upon a moſt laborious ſtatement of the occupation and produce of every acre of land in the county. We ſhall not detail the particulars; the following tables are the reſult of the whole.

	* Acres.	Aver. rent per acre.	Total Rent.	Aver. prod. per acre.	Total produce.
		£. s. d.	£.	£. s. d.	£.
In the low country	75,000	1 13 0	123,750	4 16 4⅓	361,375
Moorlands	75,000	0 6 0	22,750	1 15 5½	133,050
Hills	75,000	0 1 4	5,000	0 6 0	22,500
Roads, &c.	5,400				
Totals	230,400	0 13 5½	151,500	2 5 11¼	516,925

Subtracting 12,300 acres, included in the above tables and the preceding one, as taken up by roads, woods, gardens, and nurſery, there remains 218,100 acres employed in huſbandry, properly ſo called; upon which a capital is employed of 508,750l. The total annual produce of theſe 218,100 acres is ſtated at 488,100l.; and the total current charges of rent, and expence of management, to be met by this produce, is 438,803l.; leaving a remainder, to pay the intereſt of the capital, and the maintenance of the farmers families, of 49,297l.; that is, at the rate of 9l. 13s. 9½d. *per cent.* on the capital employed in agriculture, incluſive of the farmers maintenance.

We ſhall poſtpone the remainder of this review, to a future occaſion; and conclude this branch of it, by remarking, that from the various ſubjects embraced in an agricultural report, it is impracticable that each can receive equal juſtice in the diſcuſſion. Scarcely an individual in the kingdom can be ſuppoſed capable of writing with judgement upon ſuch a number

* The acres here are Engliſh meaſure.

ber of ſubjects as the plan adopted by the Board contains, though with pleaſure we admit, that our author has approached much nearer to the ſtandard of perfection than almoſt any of thoſe who have followed him. We know that his private feelings will not be hurt by the obſervations here made, ſenſible that his ideas as to the futility of agricultural calculation entirely coincide with our own; and we doubt not, but that every inaccuracy, noted, would have been avoided, had he ſet to the taſk, under the impreſſion, that a diſcuſſion of ſuch ſubjects tended to promote real or uſeful information. F.

BRANCH III.

AGRICULTURAL INTELLIGENCE.

OWING to the continuance of froſty weather, little progreſs has been made in field-labour during the current quarter, which neceſſarily cauſes much work to be reſerved for the Spring months: ploughing was, however, comparatively, ſo far advanced when the ground was locked up, that no material loſs to general huſbandry need be dreaded, provided the months of February and March are genial and temperate. If the country had been viſited with ſuch ſevere weather laſt Winter, when fodder of all kinds was uncommonly ſcarce, and circumſtances required the ſtricteſt economy in uſing the neceſſaries of life, the moſt dreadful conſequences muſt have enſued. Either the whole grain in the iſland would have been thraſhed out in a few months, or the brute creation would have ſtarved. If the grain had been thraſhed out, the *hue and cry againſt monopoly* would have forced it to market; conſequently, inſtead of dearth through the year, as actually happened, famine would have ſucceeded a few months of plenty. Matters, as it was, were bad enough, but they might have been worſe: hence great cauſe for the exertion of gratitude, ſeeing that the nation paſſed through ſuch a calamitous ſeaſon without ſuſtaining material injury.

Thraſhing has gone briſkly forward, which has kept markets fully ſupplied; though at prices rather higher than expected at the date of our laſt publication. Whether the

crop was ſufficiently productive to warrant the reduction then expected, or whether the total want of old ſtock would not have prevented ſuch a reduction under ſtill more favourable circumſtances, are queſtions which, we believe, did not meet with due inveſtigation. We apprehend that matters will continue much upon their preſent footing, till it is known to what extent foreign importations can be made; and that then, prices will, in a great meaſure, be governed by the rate of foreign markets, and the quantity imported.

It was generally believed, that the ceſſation of hoſtilities would have had a conſiderable effect in reducing the value of butcher meat; hence a fall from 10 to 15 *per cent.* took place over the whole kingdom, upon that event being declared. This fall, without diſpute, proceeded from the force of opinion, as it took place all at once, before the leaſt alteration in the demand occurred; therefore has not been laſting. Inſtead of continuing to fall, or even remaining at the prices then noted, cattle and ſheep have riſen conſiderably, and threaten to advance ſtill higher. Perhaps the diſtillery beaſts, coming to market at a critical period, may prevent ſuch a ſcarcity as prevailed in the two preceding years, before graſs cattle were killable; but we ſee little reaſon for entertaining ſanguine expectations of a return of ordinary prices, till the breeding counties are more plentifully ſtocked.

The opening of the diſtilleries created ſeveral well ſupported debates in the Lower Houſe of Parliament, and afforded the MINISTER an opportunity of diſcloſing his ſentiments upon various branches of rural and commercial economy. Judging from what has paſſed, we have no difficulty in ranking him among the moſt diſtinguiſhed diſciples of Adam Smith; and we truſt that his practice will accord with the principles he has ſo publicly profeſſed. So far as his adminiſtration has gone, Mr ADDINGTON has acted with wiſdom and judgement. He has permitted the diſtillers to work; thereby diſcouraging the importation of foreign ſpirits, and giving a ſtrong ſupport to home agriculture. He has taken off the duty upon ſtarch manufactured from potatoes; thereby holding out the moſt effectual encouragement to the extenſive cultivation of that valuable eſculent, which hitherto, in plentiful ſeaſons, could not be marketed. He has declared himſelf ready to aboliſh the uſeleſs, troubleſome, and antiquated cuſtom of aſſizing bread, which would place the

the trade in that article (the greateſt in the kingdom) exactly upon the ſame footing on which the ſale of every other commodity is conducted; not like thoſe gentlemen who limit their exertions to ſuch meaſures only as tend to fill the Exchequer. In a word, we ſanguinely expect, that, by promoting the general welfare of the community; by holding out encouragement to the cultivators of the ground, and to the artizans employed in manufactures, the proſperity of Britain will continue to increaſe, and the nation prove capable of ſupporting the burdens with which it is loaded. It is only through the influence of a Firſt Miniſter, that an improvement can be made in any branch of legal polity; and by accompliſhing ſuch improvement, he indirectly augments the public revenue in a greater degree, than by executing the moſt refined ſchemes of financial arrangement.

Though we are fully of opinion, that the opening of the diſtilleries was, in every reſpect, a wiſe meaſure, we are not quite certain if it was ſupported upon the faireſt and juſteſt grounds. It was maintained, that the quantity of grain, thereby conſumed, would not occaſion any riſe of price; a doctrine inconſiſtent with every principle which guides public markets. We think the extra conſumption of grain by the diſtilleries, will contribute to keep up prices, though not very much; in other words, that prices will not go ſo low as otherwiſe would have happened, had the diſtilleries been kept ſhut. Allowing, however, every weight which this argument can carry, we deem it inconcluſive, unleſs it can be ſhewn, that the people will thereby be deprived of the neceſſaries of life. Whether two hundred thouſand, or five hundred thouſand quarters of barley, is the quantity which will be conſumed by the diſtillers, we hold to be immaterial in diſcuſſing the main queſtion, provided grain can be procured for ſupporting the inhabitants, which, without doubt, ought always to be an object of primary conſideration. Beſides, barley, generally ſpeaking, is not uſed as bread corn, unleſs as a ſubſtitute, when wheat and oats are much ſcarcer than at preſent: therefore, to ſtop diſtilling, merely that barley, and perhaps the other grains, might have been two or three ſhillings per quarter cheaper, and that at a time when neither dearth nor famine prevailed, would have been little better than robbing the grower of part of his property, to enrich the conſumer. We believe the Weſt India merchants were at the bottom of the oppoſition that took place upon this occaſion. But what

would theſe gentlemen have ſaid, if petitions had been offered againſt the exportation of ſugar, in order that the home markets might be ſupplied with that article at cheaper rates? They would, no doubt, have characterized ſuch petitions as containing a propoſition groſsly unjuſt; and they would have been right: but it is exactly ſuch injuſtice as they wiſhed to exerciſe againſt the cultivators of the ground. Why the property of this claſs ſhould not be held as ſacred as that of others, we are at a loſs to diſcern; though it has been too long the cuſtom, in diſcuſſing ſuch ſubjects, to view the landed poſſeſſor as unworthy of regard, and to ſacrifice his intereſt, without ceremony, when popular clamour called for it.

In the courſe of the debate alluded to, (we avoid particulars), one gentleman oppoſed diſtilling, becauſe grain was not ſo low as in 1787, (we think he condeſcended upon that year). But if rents, ſince that period, are, in numberleſs inſtances, doubled; labour increaſed in value at leaſt 50 *per cent.*; and public burdens quadrupled; how can any man, of common ſenſe, expect, that the farmer is able to ſell his commodities at the rates then current? If the old prices are to be re-eſtabliſhed, the farmer ought to be placed upon the ſame footing as he then ſtood. Unleſs this is done, thoſe who talk about bringing the prices of the neceſſaries of life to their former ſtandard, are either groſsly ignorant, or ſpeak only to the multitude. The prime coſt of grain to the grower, is now double of what it was fifteen years ago; conſequently, unleſs the earth yield a double increaſe of what it did then, the ſale of produce cannot be made upon ſuch terms as were formerly conſidered to be fair and equitable.

The aboliſhment of the bread aſſize meets with our hearty approbation; being ſatisfied, that a pernicious reſtriction upon the freedom of trade will thereby be removed. It is eaſy to demonſtrate, that a permanent aſſize law cannot be formed upon juſt principles; becauſe the flour, produced from a buſhel of wheat, varies, both in quantity and quality, in different ſeaſons. Hence, all dry ſeaſons are in favour of the baker; and he is equally injured in adverſe ones. In ſeaſons of the firſt kind, he not only gains a greater quantity of flour, from the rough article, than ſpecified in the aſſize law; but likewiſe, that flour is capable of abſorbing more water than in ſeaſons when the grain is ripened and harveſted under unfavourable circumſtances. An aſſize law, to be juſt, ought

to

to be enacted annually, after the quality of grain is aſcertained. Juſt or unjuſt, however, it ſeems an abſurdity to regulate the price of the perfect article, when entire freedom is given in the ſale of the raw material. If regulations are neceſſary, they ought to begin at the fountain head. If bread is not to be ſold, like every other article, at the value it will bring; then flour, wheat, labour, and rent, ought to be aſſized likewiſe. This, we confeſs, would be a kind of Utopian perfection, not yet attempted, but quite conſiſtent with the principles of thoſe who ſupport aſſize laws; though, if a ſingle link is wanting, the reſt of the chain becomes altogether uſeleſs. Why ſhould not bread, like cheeſe or butcher meat, be ſold at ſo much a pound weight, and then loaves could be made of any ſize, and the purchaſer furniſhed with the quantity required? Under ſuch a ſyſtem, the public would be benefited; the Magiſtrate relieved from a troubleſome duty; and the manufacturers of bread freed from thoſe fetters which ſingly affect their trade, and place them upon a footing different from that of other Britiſh ſubjects.

The Board of Agriculture have now aſcertained the perſons entitled to premiums for the beſt eſſays upon convertible huſbandry. It certainly was a difficult buſineſs to pleaſe 344 candidates, (the newſpapers ſaid 2000), every one of whom, without doubt, expected the 200l. prize, and only 400l. to divide among them. We underſtand the prizes were cut down, (the Board having reſerved that liberty), and that betwixt 30 and 40 of the candidates have, in conſequence, been rewarded for their trouble.

Extracts from Private Correspondence.

SCOTLAND.

Letter from a Gentleman in the Barony Pariſh, Glaſgow, 8th December 1801.

'My curioſity was excited by a paper publiſhed in the Edinburgh Courant, which detailed the particulars of an important improvement in preparing ſeed potatoes; and immediately, on peruſing it, I purchaſed from Mr Wight, cutler, College-Street, Edinburgh, one of the inſtruments therein deſcribed, for ſcooping out the eye

or

or germ of the potato. I confeſs I was ſtaggered at firſt, from the ſmallneſs of the ſet, being only three quarters of an inch, of a ſemi-globular form; therefore, conſulted with ſome intelligent farmers in the neighbourhood, all of whom doubted its ſucceſs. My own gardener was more poſitive in his opinion, than any of the farmers, and decidedly condemned ſuch a practice. A neighbour ſuggeſted, that the ſcoop might be improved, and employed a ſmith to make one of 1¼ inches diameter, which turned out ſets of the ſize of a ſmall watch; therefore, could only be uſed with large potatoes. On trial, the ſets from this enlarged ſcoop produced no greater increaſe than thoſe from the ſmall ones.

The improvement of ſcooping being ſoon generally known, ſcoops were made by Mr Norris, cutler, Hutcheſon-Street, Glaſgow, ſeven eighths of an inch diameter, or one eighth larger than thoſe made by Mr Wight. I bought one of theſe alſo; likewiſe another of the ſame ſize, *having the bottom of the ſcoop taken off*, which I preſume is an improvement; becauſe when the germ begins to ſpring, the tender ſhoot is broken by the ſcoop, when entire; but, when open, is preſerved.

Notwithſtanding the prejudiced opinions of my adviſers againſt the ſcooped ſeed, I was reſolved to make an experiment; and accordingly, planted about 40 falls in the drill way, 24 inches betwixt the rows; one row of cut ſeed, a ſecond row of three fourth inches, and a third row of ſeven eighth inches ſcooped ſeed; and ſo on alternately, that each might have an equal chance of the ground and dreſſing, for they were all hand-hoed.

Between the 16th and 20th October laſt, I had them all taken up and accurately meaſured, every drill by itſelf; and to my ſurpriſe and pleaſure, found them, in each way, equally productive. This experiment proves, therefore, ſatisfactorily, that ſcooped ſeed, and even the ſmalleſt of the ſcooped ſeed, produce equal to large ones, or thoſe cut in the ordinary way.

The ground, on which the experiment was made, is a light earthy ſoil, on a whinſtone bottom, in good condition, and had carried only one crop, after lying long in lea. The produce was rather more than ſix pecks Glaſgow meaſure * on each fall. The potato was of the kind generally called the *London Draper*; and ſome of the produce weighed from 20 to 26 ounces.

The ſaving which would accrue from the univerſal adoption of this plan, is great. Upon the ſuppoſition that there are 920 country pariſhes in Scotland, and that, on an average, each pariſh plants 30 acres, (which, I preſume, is far below laſt year's planting), this

* The Glaſgow peck contains 14½ Scotch pints, or 7¼ gallons Engliſh, and holds 42 lib. Engliſh or thereby, of potatoes newly taken out of the ground.

this would make 27,600 acres planted; and allowing 32 pecks, Glaſgow meaſure, for each acre, the amount of ſeed would be 55,200 bolls, which, at 12s. per boll, is 33,120l.; three fourths of which ſaved by ſcooping, (leſs or more, according to the ſize of the ſeed potato), would be 24,840l. of real profit to the planters, and 41,400 bolls of real increaſe to the ſtock of proviſions for the country. Now, were Government, or ſome patriotic ſociety, to offer even half the ſum in premiums, to the greateſt planters, in proportion to the extent of their planting, and upon preſcribed rules, as in the ſowing of flax ſeed, &c., might we not expect to ſee ſtrong competitions who ſhould plant moſt, and be entitled to the greateſt ſhare of the bounty? Happily for the planters, in this caſe, the bounty is in their poſſeſſion; and in proportion as they adopt the plan, clearly proved, by experiments made firſt in Ireland, and now in Scotland, they will retain their ſhare of the bounty, without the trouble of making affidavit, leading a proof, or giving in a claim.

Letter from the Reverend Mr Findlater, dated Newlands Manſe, Tweedale, January 11. 1802.

The obſervations in your laſt Number (p. 412), regarding the plucking of the bloſſoms from potatoes, in all the various ſtages of their growth, are contradicted by the reſult of two experiments made in this county, by Mr Hamilton of Spittalhaugh, in Linton pariſh, and Mr Henderſon in Kirkurd pariſh. Their experiments were, to pluck off the bloſſoms, as they appeared, from ſome drills; and, at the time of raiſing, to compare the crop from theſe, with the produce of an equal extent of drill left untouched: Neither gentleman applied the teſt of weight or meaſure; but to all ſeeming before the eye, no difference could be perceived.

In regard to every experiment, whether inſtituted or accidental, particularly thoſe whoſe reſults are extraordinary, I ſhould conceive it extremely proper, that they were every way circumſtantiated, as to *place*, *date*, and *perſon*; their fallacy would then readily be detected, if they were falſe; and fallacy would rarely be attempted, if obliged to ſubject itſelf to ſuch a criterion.

Having mentioned potatoes, I give you an experiment of my own, this ſeaſon, as to *ſcooping*. I choſe a number of potatoes of the ſame ſpecies, ſimilar in ſize as might be; I ſcooped out a parcel of the beſt looking eyes, with cutler Wight's hemiſpherical ſcoop; I cut alſo out a number of equally good looking eyes with a knife, taking as much as poſſible of the mother potato to the eye; I choſe out nine of the beſt looking ſcoopings, and an equal number of beſt looking cuttings—theſe I planted in alternate drills upon a border, three in each drill. My whole ſets ſprouted, and no accident

dent occurred; but the ſcoopings came up, and continued perfectly dwarfiſh in compariſon of the cuttings. They were raiſed in two ſeparate baſkets in the beginning of November, and laid by in a cloſet to be weighed. The weighing was neglected to the middle of December; but the reſult was what might be expected from inſpection at raiſing—the produce of the cut ones weighed a ſtone and a half Tron; that of the other, three quarters of a ſtone, without reckoning very inconſiderable fractions. The experiment was merely made, to aſcertain which throve beſt. Anxious to do the ſcoopings juſtice, I preſſed the ſcoop deep in, with conſiderable violence; and, probably, the forcing of the ſcooped piece into the narrow contraction of the hemiſphere, bruiſed and damaged its ſubſtance. Would not an open ring anſwer better?

Captain Mackay of Scotſton, in this pariſh, cut one peck with the knife; he ſcooped alſo an equal quantity; (the ſcooped ones were not weighed before and after ſcooping, which would have aſcertained the ſaving of potato ſubſtance in the ſeed). They were ſet in the ſame field; no difference was obſervable in their growth; at raiſing, the difference of the produce, by meaſure, was in favour of the cuttings, by one and a half peck; the deficiency, in produce of the ſcoopings, being probably more than compenſated by the ſaving of ſubſtance in the ſeed. I apprehend, that my error in the mode of ſcooping had been avoided. The produce of the ſcoopings were the beſt-ſized potatoes; and the experiment was ſo promiſing, that the Captain propoſes to repeat it again with all poſſible accuracy.

That I may adhere to the opinion given in my ſecond paragraph, I have circumſtantiated my facts, and added my ſignature.

CHARLES FINDLATER.

P. S. Give me leave to notice an inadvertency into which you have fallen in the laſt Number. In a foot note (p. 377), it is ſaid, that *Small's plough is, with very little alteration, the old Scotiſh plough, upon a reduced ſcale.* It is certainly the buſineſs of ſcience, not only to claſſify objects into *genera*, from their circumſtances of reſemblance, but alſo carefully to diſcriminate the differences of every *ſpecies*. Small's plough, from the gradual ſcientific curvature of its mould board, from the point of the ſock to the heel of the wreſt, ſeems to me, in every point of that ſurface, calculated to carry on the fourfold operation of under-cutting the furrow ſlice, raiſing it, moving it to a ſide, and reverſing it; operations ſo imperfectly performed by the Scots plough, of whatever ſize, that, in land well pulverized, and not riſing in whole furrows, I apprehend the ploughman could pretend to do nothing more than to raiſe the furrow, and puſh it to one ſide, without reverſing it, but by accident, ſo as to expoſe a new ſurface to the action of the air.

Inverneſs-

Inverneſs-ſhire Quarterly Report.

THE ſtorm commenced in this diſtrict on the 4th November, and ſince that time, we have had only four or five days of ploughing; which, of courſe, has thrown field-work much behind. The froſt is very intenſe at preſent; along the coaſt, there is not much ſnow; but on the hills it is very deep, which muſt be a hard matter to the ſheep farmers, and render provender very ſcarce in the Spring.

The diſtillers being permitted to work, has had a quite different effect here, from what was anticipated by alarmiſts; for barley, which was formerly ſelling readily from 42s. to 45s. per boll, has now a dull ſale at 32s. and 34s. Butcher markets are tolerably well ſupplied with mutton at 5d., and beef at 6d. and 7d. per lib.; but muſt advance in a ſhort time. The ſtate of the weather in this neighbourhood, during the paſt year, has been ſingular in the extreme; for more rain, in ſome ſeaſons, has fallen in a ſingle week, than what we have experienced in the courſe of the laſt twelve months.——*January* 13.

Aberdeenſhire Quarterly Report.

THE weather continued favourable, for every kind of field-work, till the middle of November, which permitted the crops in the lateſt parts of the county, to be as well harveſted as thoſe in the earlieſt. The different ſpecies of grain turn out, under the flail, fully up to the expectation of the farmer, both as to quantity and quality. Bear ſells at preſent from 24s. to 27s. 6d.; oats, 15s. to 17s.; oat meal, from 17s. to 20s. per boll. Harveſt being finiſhed ſo early, there was more time for field-work than uſual; of courſe, ploughing and other farm work is farther advanced than cuſtomary. Since Martinmas, nothing could be done in the fields; the ſtorm, which then commenced, has been ſo tantalizing, as to baffle every attempt to open the public roads, for the general communication of the country. It is a great conſolation, that ſuch weather did not happen laſt year, as it would have been attended with very ſerious conſequences. This year, provender is plenty, while the ſtock of cattle on hand, eſpecially of the larger kind, is conſiderably under what is generally kept. Fewer cattle have been put up to feed than uſual, owing to the high price at which they could be bought in; and, during the ſtorm, the feeding of theſe has come ſlowly forward; it being, for the moſt part, impoſſible to procure turnip, or to move them from the fields. Prices, both of fat and lean ſtock, are very high, and may be expected to continue ſo for a conſiderable time.——*January* 14.

Letter from a Gentleman near Perth, January 14.

'THE fine dry weather, which we were favoured with, about the end of October and beginning of November laſt, induced many farmers, in this quarter of the county, to ſow wheat on clover ſtubbles; but whether theſe late ſowings will turn out to profit, muſt remain a queſtion, for ſome time at leaſt. The extent of wheat ſown laſt Autumn, on the whole, was fully more than the average of former years.

'The froſt occaſioned a total ſtop to field-work about the middle of November, and ſince that time, little indeed has been done. We had only a few days open weather about the 10th of December; and, excepting theſe, it may be ſaid that the Winter has been very cloſe, and, at times, the froſt moſt intenſe. The ſnow lies very deep on the hills to the north of us, though the low country, and the river ſide is rather barer than could be wiſhed; at leaſt, I am one of thoſe people who would always like to ſee a good coat of ſnow along with froſt; as, in my opinion, turnips, and all young plants, both of wheat and graſs, are much ſcreened thereby.

'When writing on this ſubject, I beg leave to convey a hint (through the channel of your uſeful Publication) to all growers of turnips, to encourage them to ſtore up a conſiderable proportion of the roots before *any appearance* of *Winter*; and I can aſſure them, from experience, they will never have any cauſe to regret following this advice. For a period of nearly twenty years, I have, more or leſs, followed this plan; and ſome years, I have kept turnips in good ſound condition, within doors, for nearly three months. My practice was, to top and tail; houſing nothing but the beſt roots, and giving my young ſtock the tops, when freſh and newly cut off; by which means, I got a conſiderable benefit from a part of the plant which is often loſt; and am ſorry to ſay, that a great quantity of *keep*, of this ſort, has gone for nothing this ſeaſon. I fear, too, in ſome ſoils, many of the roots will alſo be uſeleſs. By *houſing* early in the ſeaſon, any given quantity of turnips will afford a much better keep, than if ſtanding without doors at the mercy of the weather; which, even in the beſt and mildeſt ſeaſons, muſt prove hurtful to turnips of the early ſowings.

'I am well aware, that ſome of your readers, who grow very large fields of turnips, may think lightly of all this; and ſay, that houſe-room for their ordinary conſumption, during three months, could not be furniſhed without a vaſt increaſed expence; but, at leaſt, it might be in part tried; and I am convinced the practice would not be ſoon relinquiſhed. Some of your friends may have followed this plan already. However, I know many have not; and

happy

happy ſhould I be, if this ſuggeſtion would lead them to a fair trial.

'I have obſerved many people take in turnips from the field during the moſt ſevere weather, and give ſuch food to their cattle; a practice which I very much diſapprove of; perſuaded the beſtial can derive no good whatever from having their bellies filled with iced turnips.

'The prices of cattle in this neighbourhood have riſen conſiderably ſince the date of your laſt Number; which may be occaſioned, partly at leaſt, if not altogether, from the great quantity of good fodder of laſt crop, enabling farmers in general to increaſe their ſtock of cattle, for the good purpoſe of making manure, which is much wanted indeed; the preceding ſtinted crop having obliged many people to reduce their ordinary ſtock, in the firſt inſtance, to their own prejudice; and which, too, in the end muſt have been a loſs to the community at large, had the general ſtock not been made up, as, in my humble opinion, it now is.

'The grain raiſed in this quarter is moſtly ſold by ſample at Perth, although the town by no means conſumes what is bought in its market. A very conſiderable quantity of grain is ſhipped off to ſuch ports as the corn merchant may judge moſt for his intereſt, the river Tay affording a ready communication into the German Ocean, unleſs in ſome ſevere winters (like the preſent) when ſhut up with ice; which circumſtance never fails to depreſs the market.

'The prices of grain here, this ſeaſon, have nearly kept pace with the Haddington rates; oats rather higher. The late alteration on barley, cannot eaſily be accounted for. An increaſing conſumption, with a diminution of price, in any one article, are rare occurrences indeed; and, were I to riſk an opinion, cannot be of long duration.'

Lanarkſhire Quarterly Report.

THE laſt harveſt having proved particularly favourable, the different crops were well got; and, except in the article of peas and beans, afford a return equal to the expectations previouſly entertained. The great variety of ſoil and ſituation in this county, renders it difficult to ſtate the average produce of corn at the mill; for, though ſome oats produce ſixteen pecks of meal per boll, others will not yield more than twelve pecks: but it is allowed, that the potato oats give about two pecks of meal, per boll, more than the other varieties uſed in this diſtrict.

The centre of Clydeſdale is particularly diſtinguiſhed for producing fruit of various kinds. The ſmall fruit, *viz.* gooſeberries and plums, were conſiderably defective laſt ſeaſon; but the large fruit,

viz. apples and pears, were perhaps the moſt luxuriant ever known. The orchards upon the Clyde, in a diſtrict of about nine miles in length, produced to the proprietors conſiderably above 3,000l. Sterling; and, owing to the goodneſs of the ſeaſon, it is believed that the fruit merchants have been great gainers.

The weather having proved very favourable for finiſhing and making up the fallows, wheat ſeed was depoſited in the earth in good order, and promiſes well; the tillage, in the mooriſh and high parts of the county, was conſiderably advanced before the froſt ſet in.

Our markets for grain, in the laſt ſix months, have very fortunately declined conſiderably; though they have ſometimes fluctuated during that period. Butcher meat runs from 7d. to 9d.; butter, from 1s. to 1s. 1d.; common cheeſe, about 5d., and new milk cheeſe, about 8d. per lib., all Tron weight. Potatoes ſold from the field, about 7½d. per peck, which meaſure contains now 14½ Scots pints, and is the only one allowed to be uſed in the lower and middle wards of this county: the peck uſed in the upper ward, is the ſame with the Edinburgh ſtandard. —*January 14th.*

Letter from Glaſgow, 15th January.

'We had a fine wheat-ſeed time, which allowed a great breadth of ground to be ſown, in this neighbourhood, with that grain. The braird had a fine appearance before the commencement of the froſt, which is very ſevere at preſent; but, as there was a fall of ſnow at the beginning of the ſtorm, we hope the young plants will not ſuffer greatly by it.

On account of the early froſt, we have little or nothing ploughed for the Spring ſeeds. Cattle of all kinds are high in price, eſpecially milk cows, ſome of which bring 25l. Sterling. Our corn market has been well ſupplied, of late, with all kinds of grain; and, at preſent, ſales are very heavy, at the annexed prices. Our ſupplies have hitherto been procured in the neighbourhood, and from the home counties; but, ſhould theſe ſources dry up in the Spring, or be inadequate to our conſumpt, we muſt, as uſual, have recourſe to America, the Baltic, &c. for what may be wanted.

State of Markets at Glaſgow, January 15th.

American wheat	44s.	to	46s.	*p.* 240 lib.	Engliſh.
Dantzic do.	46s.	to	48s.	*p.* boll,	Linlithgow meaſure.
Britiſh do. new	38s.	to	42s.	*p.* do.	do.
Do. barley -	30s.	to	34s.	*p.* do.	Stirling do.
Do. bear -	30s.	to	32s.	*p.* do.	do.
Do. oats -	18s.	to	22s.	*p.* do.	do.
Do. beans and peas	23s.	to	25s.	*p.* do.	do.
Oat meal -	19s. 6d.	to	21s.	*p.* do.	of 140 lib.

Oat

Oat meal by retail	1s. 4d.	to	1s. 5d. *p.* peck of 8 lib. Dutch.
American flour	44s.	to	47s. *p.* barrel.
Home made do.	65s.	to	70s. *p.* ſack.
Hay - -	11d.	to	1s. *p.* Tron ſtone.
Straw - -	4d.	to	5d. *p.* do. do.
Beef - -	8d.	to	1s. *p.* do. pound.
Mutton - -	9d.	to	1s. *p.* do. do.
Veal - -	10d.	to	1s. 2d. *p.* do. do.

Dumfries-ſhire Quarterly Report.

THE weather, through the month of November, and part of December, was favourable for farmers of every deſcription—ſtocks of ſheep, and cattle kept on paſtures, were improving, and huſbandry work was carried on without interruption. About the middle of December, the ſnow fell deep on the hills; and, ſince the froſt became ſevere, the ſheep ſtocks of Crawfurdmuir, Tweedſmuir, the Foreſt, and Eſkdalemuir, have been driven and kept on the uncultivated parts of the midland farms of this county. From 30,000 to 40,000 of them are paying ſnow mail, at the rate of 70l. or 80l. a day, at the preſent time. It is theſe uncultivated lands only that can ſupport ſtocks in ſuch times. Here, the improver by cultivation will pauſe, and conſider, if there is not a certain length he ſhould go, and not further, as well for the general good, as for his own ſecurity. The weather has now altered, and two days of the gentleſt and moſt effectual thaw ever remembered, has cleared off the whole ſnow on the weſtern ſide of the hills.

The prices of cattle continued to riſe in November, and, to this day, have not abated, to the ſurprize of buyers and ſellers. They are now, for lean cattle, at a rate beyond the expectation of the feeder being paid, even at prices far beyond what the butcher has hitherto got. Beef and mutton continue from 5d. to 6d. the pound of 16 ounces. Pork, in carcaſe, began in November at 7s. 6d. the ſtone of 14 lib.—It is now ſo high as 10s.

The manuring of land with lime, has been carried on to a great extent this year. The quantity drawn from public kilns in the twenty pariſhes of Annandale, has been equal to 6000 buſhels per day; and the trade continued as long as the ſeaſon permitted, which, it is to be hoped, will cauſe a conſiderable increaſe of future produce. Farmers are advancing in ſkill, as alſo in ſpirit. There are now ten acres of turnip eaten with ſheep, for one that was ſo ſeven years ago; and this, of all others, is the ſureſt and ſpeedieſt way of bringing wild outfield land into good culture.

In November laſt, we had a competition for prizes given to the ploughmen of Annandale, by the Highland Society. It was very generally thought, that an Eaſt-country lad ſhould have got the firſt

firſt prize; and certainly no man could have ſhewn more correctneſs and regularity in laying his furrow; but, in the ſtate of the land, it was conſidered by the Judges, that others, who alſo ſhewed perfect command of the plough, laid the furrow more adapted for covering the ſeed, than that which raiſed leſs ſoil, and was laid more on the back. The ploughs which won the two firſt prizes, were made by *Hutton* of Carliſle, very different from the old Scotiſh plough, and alſo different, particularly in the mould-board, from *Small's*, the latter allowing the furrow to wear weaker before it is filled or turned, which no doubt makes the operation eaſier. We ſee good work done by all kinds of ploughs, when they are in the hand of a ſkilful ploughman. To encourage and propagate ſuch ſkill, muſt be a laudable object. To cut and turn the furrow with leaſt force, is alſo of importance; and, in this point, it is ſuppoſed, Small's plough has not been excelled. Farmers will ſee with pleaſure, the invention of a machine for aſcertaining this intereſting object. It appears advertiſed, as one of the uſeful things for which the Agricultural Society has given a premium.

The potato oats, by their produce laſt year, have ſhewn that they are a great acquiſition. They are yet generally kept for ſeed. Thoſe already thraſhed, have produced from 80 to 100 buſhels Wincheſter the acre; and the buſhel has yielded a ſtone and a half of meal. Like other ſpecies of the early oats, they require good land, and to be cut down before the ſtalk loſes entirely the greeniſh hue.——*Jan.* 16.

Roſs-ſhire Quarterly Report.

WINTER ploughing went briſkly forward till the 8th *ultimo*, when a heavy ſtorm of ſnow, which has continued to this date, ſtopped further progreſs. The inland ſtore-farmers are driving their ſheep flocks to the coaſt ſide, and endeavouring to keep them alive with hay, or ſuch food as they can procure. If the weather does not change ſoon, the loſs, both of cattle and ſheep, muſt be very great.

There has been a briſk demand of late for barley, which, as uſual, has been ſold higher in this diſtrict than in the low country, *viz.* from 34s. to 42s. per boll: our firlot contains 32 Scots pints. Oat meal, per boll of nine ſtone, ſells from 20s. to 24s. Beef and mutton, 6d. per lib. Dutch weight.——*Jan.* 13.

Mearns Quarterly Report.

CONSIDERING the fineneſs of the weather at the end of Autumn, it might have been expected that ploughing would have been farther advanced. Indeed, in few ſeaſons have I ſeen leſs progreſs made than in this one; the uncommon good weather inducing farmers to

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go on with every unfiniſhed Summer job. The ſupply of grain at market was very ſcanty after harveſt; in many places there was an abſolute want of meal: but, of late, the quantity preſented is fully equal to the demand; conſequently, prices are looking downwards.

Turnip ſtock, owing to the ſeverity of the weather, have come ſlowly forward, and a want of fat cattle prevails in all our markets. Beef keeps high, being 10s. 6d. per ſtone to the butcher, and retailed from 7d. to 9d. per lib. This part of Scotland is drained of good cattle, and young beaſts now conſtitute the chief part of every man's ſtock. Turnips are ſuffering much from the froſt; and, as commonly happens, the beſt fields ſuffer moſt.

Jan. 18.

Eaſt-Lothian Quarterly Report.

The bean ſtubbles were hardly ploughed, and ſown with wheat, when the froſt ſet in; and, with a few intervals of ſhort duration, the ground was locked up from the middle of November to the 15th January, when a fine thaw took place, which has ſince continued. This ceſſation of labour will throw much work upon the Spring months, as nearly the whole of the oat land is ſtill to plough; much of the land deſtined for turnips alſo remains without the firſt furrow.

Of late, the grain markets were dull, the ſupplies being large, and the wholeſale demand more limited than cuſtomary. The butcher market is ſcantily ſupplied, eſpecially with ſheep; and prices appear to be on the advance. Decent fat is worth 10s. 6d. and 11s. per ſtone of 17½ lib. avoirdupois, ſinking the offal. The ſtock of lean cattle in the ſtraw yards is ſuppoſed to be leſs than ever known in this county.

Little work has been performed for two months paſt, except thraſhing corn, driving it to market, and middening dung. The beſt farmers now empty their ſtraw yards, whenever lying weather prevails; as, by removing the dung to an adjoining field, and mixing it carefully, the quality is improved, and putrefaction haſtened; objects deſerving particular attention.——*January* 20.

Mid-Lothian Quarterly Report, from November 1ſt 1801, *to January 28th* 1802, *incluſive.*

The favourable weather, taken notice of in the laſt quarterly report, continued during the whole month of November, from which, not only the wheat-ſowing was completed in the beſt ſtyle, but the winter-fallows, in preparation for barley, potatoes, &c. have been generally got over in good condition; ſo that, ſo far as theſe

theſe circumſtances go, the proſpect of the enſuing crop continues ſtill in a hopeful light; more eſpecially, that the exceeding ſevere froſt, which laſted from the beginning of December till paſt the middle of January, has gone off in the mildeſt manner, leaving the ground in a very mellow ſtate for the Spring operations, which are now very generally begun to with vigour, although no ſeed has yet been thrown into the ground; nor, indeed, is it uſual, in this county, for the land to be in a fit ſtate for ſowing, for near a month to come.

The ſnow, which, from all accounts, ſeems to have fallen uncommonly thick in the counties both to the ſouth and the north of this, has been very moderate in Mid-Lothian, particularly in the low country around Edinburgh. The roads have in no inſtance been blown up; and, of courſe, all carting operations, ſuch as driving dung, &c. were never interrupted.

Prices, particularly of oat-meal, (the great ſtaff of life here, with the labouring part of the community), have been moderate, and appear ſtill to be declining. Even barley, which, from the recent opening of the diſtilleries, was apprehended would advance conſiderably, has continued to fall in price ever ſince that event took place; which may ſhow on what flimſy grounds popular notions are commonly founded; as hardly any conſiderable town in the kingdom but took a violent alarm on this occaſion, while many of them even went the length to petition Parliament againſt the meaſure. The newſmen, too, ſet themſelves every where, with all their might, to decry it, on the plea of ſcarcity, (a new ſong with them), although, were the effect yet to be ſuch as they fancy, the blame muſt be more imputable to themſelves, than to any other party; as, from their extravagant accounts during harveſt, of the immenſity of the crop in hand, the nation was, in a manner, called on to believe that it was inexhauſtible.

Morayſhire Quarterly Report.

An intenſe froſt ſince the 1ſt November, has prevented any ploughing or other field labour; and if it continues much longer, a very hurried ſpring muſt enſue. Fortunately, fodder is plenty, and work cattle in the beſt condition; while, in the Highland diſtricts, it is feared, many hundreds of ſheep will be loſt, owing to the exceſſive depth of the ſnow, and ſeverity of the weather.

For ſome weeks paſt, grain of all ſorts has been on the decline, barley eſpecially; and, in all probability, people who were afraid that the opening of the diſtilleries would have a tendency to raiſe the price of that article, will now be ſatisfied of the contrary.

Previous to this meaſure, conſiderable quantities were uſed by ſmugglers, who now ſeem to have given up trade in favour of the licenſed

licenſed diſtillers, and they being fewer in number, will not occaſion the ſame competition. Some parcels of this crop, at one time, ſold for 37s. per boll; now, the ſame quality can be readily had at 30s. and probably may yet get lower.

The quality of our wheat is better than expectation, but proves very deficient as to quantity. Prices are not yet fixed; but it is ſuppoſed will run from 30s. to 32s. 6d. per boll.

Our farmers have a good many handſome young cattle on hand, for which they expect a briſk demand, when the weather ſettles. The preſent price of beef and mutton is 7d. per lib.

16th January.

Letter from a Gentleman at Elgin, 16th January.

'One great object of your valuable Magazine, being to communicate uſeful knowledge, eſpecially that which relates to the improvement of our country, I cannot doubt but an account of a very important diviſion of a large field of *run-ridge* land in this neighbourhood, which has been, for time immemorial, in that unprofitable ſtate, will be acceptable to your readers.

The *Aughtenpart Lands* of Elgin, lye to the ſouth-weſt of the town, and extend, in that direction, upwards of two miles; their extreme breadth, in the contrary direction, being nearly one mile. They are divided by the river Loſſie into two equal parts; that, on the weſt ſide of the river, being called *haugh* land, and the other, on the eaſt ſide, *hard* land. This extenſive field, once the property of the Earls of Moray, formed part of the Caſtle lands of Elgin, of which Caſtle they were hereditary conſtables.

It is ſaid, by the tradition of the country, (for no records exiſt of ſufficient antiquity to determine its early hiſtory,) to have been granted by that family as a reward to the relations of ſixty-four brave townſmen who fell in their defence, in one of thoſe bloody feuds which ſo frequently occurred between neighbouring and powerful chieftains. The origin of the word *aughtenpart*, has been ſought after with ſome care; but is ſo involved in obſcurity, that not leſs than *five* etymologies are given, each of which ſeem doubtful, and ſome of them forced.

Theſe ſixty-four ſhares or lots of this field, conſiſted of from four to five Scots acres each, and were again ſubdivided, according to the policy of thoſe days, into about *twelve hundred runridges*; the proprietor of one lot having his proportion in twenty different parts of the field. In this extraordinary and diſadvantageous ſtate, has the property deſcended to the preſent time; and, in the progreſs, has frequently changed and leſſened the number of its proprietors. Lately, they amounted to twenty-five; of whom, one poſſeſſed *fourteen* aughtenparts; another *nine*; another *five*; two others, *four* each; and none of the reſt more than *two*: ſome of

them only *one*, and even *two thirds* of one. A variety of cauſes concurred to point out the propriety and neceſſity of a *diviſion*. From the extremely minute and detached parts into which the whole was broken, and from the uncombined, and often jarring intereſts, of the different proprietors, no meaſures were ever taken to protect the ſoil, by embankment, from the ravages of the river in floods; and hence, many acres of the richeſt loam and clay lands have been totally ſwept away. Another, and not a trifling evil, aroſe from the perpetual ſtate of irritation and enmity created amongſt the proprietors and tenants, from the ignorance, and, not unfrequently, the avarice, of the latter; who being, in general, very poor, and holding but a ſmall portion, encroached, in their ploughing, on their neighbours ridges. It was alſo evident, that no ſpecies of agricultural improvement could poſſibly be attempted from theſe circumſtances, although no lands in Scotland afforded greater natural advantages. To avoid theſe evils, and ſecure the ſtriking benefit to each proprietor, ariſing from a regular and legal diviſion, which ſhould concentrate his proportion of the whole into one lot, and include a ſhare of ſeventy-four acres of paſturage and waſte lands, hitherto held in common, was the anxious wiſh of the greater number of them. Doubts were entertained by others, whether, from the peculiar circumſtances of the lands, it were poſſible to divide them in ſuch a manner as to give juſtice to each. An application, however, was made to the Court of Seſſion for this purpoſe; and, in conſequence, a commiſſion to Sir George Abercromby, Baronet, Sheriff of the county, and other gentlemen therein named, was granted. The commiſſioners directed Mr Brown of Linkwood to make an accurate ſurvey; and alſo appointed four intelligent and reſpectable farmers in this neighbourhood, to value the lands. Their valuation eſtabliſhed a rule for the diviſion. In October laſt, the whole, conſiſting of 320 Scots acres of arable, and 74 acres of paſture and waſte lands, was divided into allotments, correſponding with each individual's ſhare in the property. This has been done in a manner ſo convenient, and ſo juſt to each proprietor, that it reflects infinite credit on the induſtry, the impartiality, and talents of the commiſſioners, the valuators, and ſurveyor. Although this buſineſs included an extent, a variety, and an intricacy of intereſts, which have not elſewhere, perhaps, ever been ſo interwoven and confuſed, and ſome of which were even inimical to the plan of diviſion; yet all the parties, without an exception, are ſo completely ſatisfied, that their various allotments are already taken poſſeſſion of, although the final decreet of the Court of Seſſion has not yet been obtained.

The advantages ariſing from ſuch a diviſion, are not merely individual; they are general and important. Much valuable land will be preſerved from the deſtructive inroads of the river; an extent of nearly

nearly *four hundred* acres, conſiderable part of which is of the richeſt loamey and clayey ſoils, will be reſcued from the moſt miſerable ſpecies of huſbandry, *runridge*, and put into an immediate ſtate of improved and judicious culture. The face of the country will be ornamented by the ſtraightening of its ridges, and by embanking, incloſing, and ſubdividing the various lots with thriving hedges. From the ſucceſs of this meaſure, a generous ſpirit of emulation will ſpring up in other ſituations, under ſimilar circumſtances; while, to the preſent proprietors, the advantage has been inſtantaneous, and almoſt incredible. The average rent of theſe lands, in their former ſtate, was only 20s. per acre; and the average rent, *now*, is 60s.; ſome of it even ſo high as 80s. per acre.

Though unconnected with the preceding detail, yet I perſuade myſelf, that an account of another improvement in this neighbourhood will be acceptable to you, by which the extenſion of *planting*, on proper ſituations, muſt be ſtrongly recommended, from motives of private advantage and public utility, to the notice of proprietors. Near Biſhopmiln, on the property of the Earl of Findlater, in the year 1772, there was planted an incloſure of 120 acres, with Scotiſh firs. The moor was very bleak, yielding no paſture, and only a carpet of dry, ſhort heath. The whole ſpace did not produce *one penny of rent*. For ſeveral years back, the weedings have returned conſiderable ſums; and laſt year, it was deemed adviſeable to grub out, by the roots, a few acres, by way of experiment, for the purpoſe of cultivating the ſoil. The wood brought 20l. per acre, and the ground it covered lets at 20s. per acre. The ſole expence to the proprietor, was for grubbing out the wood, which coſt 3l. 5s. per acre; as the weedings produced much more than the original expence of incloſing and planting. It is obvious that the proprietor now draws a clear rent (except an annual intereſt on the expence of grubbing) of 40s. per acre, for what, in its previous ſtate, was of *no* value; while the country has been much embelliſhed by the appearance of the wood, and the farmers greatly accommodated with timber for paling, and a variety of other uſeful purpoſes, for which the weedings were adapted.'

N. B.—A continuance of this gentleman's correſpondence is earneſtly ſolicited. N.

Fife Quarterly Report.

The ſevere froſt, which continued from the middle of November to the 17th current, not only put a ſtop to field-labour for the time, but alſo much injured our turnip crops, and wheats upon light lands, which were but ſlightly covered with ſnow.

The opening of the diſtilleries has procured a readier market for barley, though prices have rather declined ſince that event. Oats give well, and oat meal has fallen from 20s. to 18s. per boll. Much grain has been thraſhed out of late, yet the ſtack-yards have a good appearance; and we apprehend no ſcarcity of fodder.—18*th January.*

Letter from Carnwath, Lanarkſhire, January 18*th.*

'We have experienced a ſevere ſtorm of froſt and ſnow, which, in this high diſtrict, always places us in an uncomfortable and expenſive condition. The ſheep farmers were completely blocked up from food at home; therefore forced to fly to the lower diſtricts with their flocks, where hay was given them. A continuance of the ſtorm for another fortnight, would have produced the utmoſt diſtreſs; but, fortunately, a fine thaw has now commenced.

Victual markets are looking down; but, as a counterbalance, cattle and ſheep are getting as faſt upwards. Turnip fed cattle are ſelling from 9s. to 10s. 6d. per ſtone, ſinking the offal; and lean cattle are ſtill more in demand than thoſe that are fat. The greater part of the wintering cattle in the ſtraw-yard, are already ſold to the Engliſh dealers, and are to be drove in a month. High as prices were at Falkirk, a good profit has been made upon the ſtock bought there. Sheep of all kinds are alſo in much requeſt; as are likewiſe horſes, particularly thoſe of a good kind.'

Letter from a Farmer in the ſame Diſtrict.

'Our crop, laſt ſeaſon, was harveſted at an early period, which is always a favourable circumſtance with us. The ſecond crop of clover proved very luxuriant; but the misfortune was, we could not procure cattle to eat it; a great part of it therefore was made into hay, which augments the ſtock of fodder.

The weather, to the end of November, was good, and labour, of courſe, got far forward; but, ſince that time, little has been done, as the froſt continued, with few intermiſſions, till the 16th inſtant. Some days it was very intenſe; and ſeldom have I ſeen ſuch a load of ſnow upon the ground. The temporary thaws melted the ſurface; and, being immediately ſucceeded by more froſt, the country aſſumed the appearance of a field of ice. Thoſe who had not fodder for their ſheep flocks, were reduced to the neceſſity of driving to other places, by which they ſuſtained much expence.

Owing to the burden of thirlage, almoſt the whole of our oats are manufactured into meal, few being marketed in their natural ſtate. Potatoes are very plentiful, but not much in demand this ſeaſon.'

Letter

Letter from a Farmer near Glaſgow.

'I have read your Magazine with a good deal of ſatisfaction; but permit me to remark, that nothing as yet has been ſtated reſpecting the quantity of grain required to ſow a given ſpace of ground, which I hold to be an important queſtion in rural œconomy. It is my humble opinion, founded upon thirty years experience, that one fourth too much ſeed is generally caſt away over all Scotland; therefore, would be happy to learn your ſentiments, or thoſe of your coreſpondents, concerning this ſubject.'

Letter from a Gentleman at Ferres, 12th January.

'I have the pleaſure of ſending you an account of the improvements of the Carſe ground, on the farm of Nethertown of Grange, the property of James Peterkin, Eſquire, and occupied by Mr John Hoyes, which was let to him in the month of December 1795, by Lewis Dunbar, Eſquire, then proprietor, for the ſpace of 19 years. It was frequently propoſed to the former proprietor, by the tenant, to incloſe the Carſe by an embankment to keep off the ſea, upon receiving an allowance of a year's rent of the farm, ſay 195l. Sterling: But as no ſtipulation for that purpoſe was made at ſetting the farm, the offer was declined. In this way, it lay over, until about ſixteen months ago, that Mr Peterkin agreed to give a year's rent of the farm, as ſtated, and alſo an allowance to meliorate the houſes, to the extent of 150l. Sterling more than had been at firſt fixed upon. Under theſe circumſtances, the embankment was begun about the 1ſt day of June laſt; and, in November, it was brought to its full height over the whole; ſo that the Carſe has been completely defended from the ſea ever ſince the ſpring-tides in October. I cannot poſitively aſcertain the extent of ground gained, as it has not been meaſured ſince the dike was erected; but, from the laſt ſurvey of that part of the eſtate, it would appear 50 acres were improveable; from which is to be deducted the quantity occupied by the baſe of the dike, the border on the outſide, with a few detached ſpots, probably included in the meaſure. I ſhall now mention the method adopted in carrying on the operations.—After looking over the Carſe, and marking out the line of dike, the length of which is 1400 yards, moſtly in a right line, except an angle at the diſtance of 300 yards from the weſt end, and a ſegment of a circle at about 250 from the ſouth-eaſt end, it was reſolved to make the embankment 6 feet of height in the higheſt part of the ground, and to allow 2 feet of breadth in the bottom of every foot of height, as you will ſee by the annexed draught of the mould. After taking the level of the Carſe, it was found, that where the ground was low, and a good deal of it broken by runs of the ſea and outlets for the water, the dike would require to be 8 and 10 feet high, to have it on a level at the top; ſo that the average will be 9 feet high. The embankment was built in the following manner.—It

was

was begun on the higheſt ground, near the weſt end, and two moulds ſet up at the diſtance of 70 or 80 yards; the height 6 feet by 12 broad in the baſe; the ſlope on the outſide 6 feet, on the inſide 4 feet, and the breadth at the top 2 feet; the ſides made up with feal from the broken ground on the outſide of the dike, which were laid with the graſs-ſide down, two feal deep on each ſide of the dike; the outſide feal of the firſt courſe with the ends out and in, and the other running along; the next courſe, the outſide feal running along, and the inſide out and in, and ſo on alternately, each courſe conſiſting of a head and runner; the body of the dike being made up of the Carſe ground from which the feal had been cut, and packed down by men with beaters. When this was brought to the height of 4 or 5 feet, another piece was begun, leaving an intermediate ſpace, where there were any water-runs, for the egreſs of the tide: this was found neceſſary, to draw off the water from the low parts of the Carſe, which would have been filled up in ſpring-tides; and, by coming in at the end, and over the high ground, would have been prevented from getting out by the dike, if it had not been done in that way; ſo that the embankment was all in detached pieces, till it was brought near the height. Theſe intermediate ſpaces were then filled up, betwixt the fall of one, and riſe of next ſtream-tide, after laying down wooden pipes with ſtoppers, in the dike, to carry off the ſink-water. It was a great labour to get the work carried on; in ſome places having to croſs over lakes and runs made by the tides, which required vaſt quantities of materials, the dike being in ſome places upwards of 10 feet high, and 22 broad in the baſe: the greateſt part of the dike is 16 to 18 feet broad. There was one lake, of 150 feet in length, and 50 feet in breadth, filled up with earth, clay, and ſand, to the height of 5 feet; on which the dike was then built: This forms a mound, on the outſide of the dike, of 15 or 16 feet broad; and through this there are pipes laid, to carry off the ſink-water. A ſtream of water formerly run this way; but it was turned by the weſt end of the farm, by cutting a canal, which conveys the water through the embankment there, by means of an outlet built of ſtone, with a ſluice on the inſide, raiſed to the level of the running water, and a folding door on the outſide, to be ſhut by the ſpring-tides. At this place, a road, that formerly led to Findhorn at low water through the Carſe, is carried over the top of the dike, by making a mound of earth at each ſide, with a gradual approach and deſcent. Since the Carſe has been incloſed, the tides have been ſo high, that the water, during a ſevere ſtorm in November, was ſix to ſeven feet deep at the back of the dike: the wind, being from the north, occaſioned a heavy ſwell and ſurge, but no water came over the top of it. It is in contemplation, as ſoon as the enſuing ſeaſon permits, to cover the outſide with feals, the green ſide uppermoſt; and I have no doubt, when finiſhed, it will effectually ſecure the lands from any further

further viſitation of the ſea. And though the work may not have been conducted according to the moſt approved method, I can only ſay, that though I had the management of it, I confeſs my inexperience, never having had an opportunity of ſeeing any improvement of the kind, except a field of eleven or twelve acres on this farm, which the ſea covered at ſpring-tides, and was incloſed by an embankment, of which I had the direction, the firſt year of the leaſe. The expences of the embankment to defend the Carſe, cannot be well aſcertained at preſent; but it will be a good deal more than is allowed by the proprietor. A great part of the Carſe is already ploughed; but, the Winter ſetting in ſo ſevere, prevented the whole from being done. It is intended to fallow it, in preparation for a crop of oats in the ſucceeding Spring; but this intention may not be unalterably adhered to. There are various ſorts of ſoil in the Carſe; ſome of it clay, ſand, gravel, black rich earth, and parts of it of a moſſy nature. In ſome places below the gravel, which may have been forced on by the tides, a thin ſtratum of clay, upon ſand, and ſome parts clay and ſand alternately. There are other parts of the Carſe not ſo rich as might be expected, the ſurface having been carried off by former tenants, for mixing in their dunghills.

Reference to the Mould for the Dike.

A, the breadth of the dike at the top, when finiſhed.

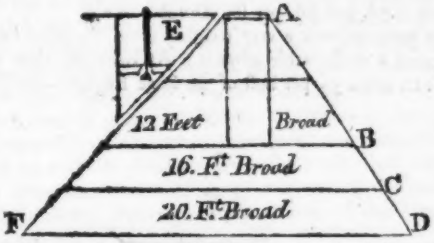
B, the breadth of dike at bottom, being 12 feet, when it is 6 feet high.

C, the breadth when 8 feet high.

D, the breadth when 10 feet high.

F, the ſlope on the ſea-ſide of dike, which is always equal to the half of the breadth of the bottom; the inſide ſlope, and breadth of the dike at top, is equal to the other half.

E, is a plumb rule in a frame, made to apply to the mould or dike; the intention of it was, to find if the dike was kept on the proper ſlope, where a line could not be applied from one mould to another, as in a round or turn, or when the moulds were obliged to be taken down; but this one only anſwered for the ſea-ſide, another being uſed for the inſide, to fit its ſlope.



Scale of the mould ¼ of an inch for a foot.

Berwickſhire Quarterly Report.

Much about the uſual quantity of Winter wheat has been ſown in this county. The early fields are looking well; but the later ſowings were overtaken by the froſt, before they had made a complete braird.

Ploughing is rather in a backward ſtate, having been quite at a ſtand for near ſix weeks previous to the middle of January, from the froſt and ſnow which prevailed. Towards Chriſtmas, the ſnow fell ſo deep, that it became neceſſary to ſupply the flocks with hay or turnip, even in the lower diſtrict; and, on the 13th and 14th inſtant, moſt of the roads which lay in an eaſt and weſt direction were drifted up. Fortunately, a thaw commenced on the night of the 15th, with a freſh gale at ſouth-weſt, which has laid the paſtures open to the ſheep, and allowed the ploughs again to enter; but the roads, in many places, are ſtill difficult.

Cattle markets had ſome appearance of being lower, upon the firſt news of peace; but, as the ſupply was not greater than met the demand, lean cattle were bought higher at Martinmas than ever remembered at that ſeaſon of the year. Turnips are ſo abundant, that many of the young cattle have been allowed a feed of them daily, ſince Winter ſet in. The letting price for thoſe of a good quality, has been from three to four guineas an Engliſh acre: ſeveral of them appear to have ſuffered by the froſt, but the extent of the injury cannot yet be aſcertained.

Hay fell conſiderably in value after the July rains, and has, as yet, never exceeded the ſelling price from the rick; but this is more to be attributed to the aſſiſtance that has been derived from a plentiful turnip crop, and there having been no cavalry quartered in this county, than to the quantity on hand, which is by no means abundant.

Oats have proved excellently, both in the barn and at the mill. Wheat alſo turns out well; but barley, from being ſmall in the grain, does not yield a proportional increaſe.

Butcher markets have remained pretty ſteady during this quarter; but the demand for fat ſtock has been rather briſker of late. Beef and mutton is 7d. and 8d. per lib. Dutch.

Though potatoes were a very weighty crop, the price has recently experienced a conſiderable advance: At Berwick, they are now ſelling at 12s. and 13s. per boll of 40 ſtone Engliſh.——*Jan.* 20.

ENG.

ENGLAND.

Letter from a Gentleman Farmer in the South of England, December 15th 1801.

'We have been fortunate in our wheat crop this ſeaſon, the ſamples in general being very good, and ſuperior to any for ſeveral years paſt. Barley was bulky in the field; but the quality, on the whole, is but middling, and the produce, per acre, much under that of laſt year. Oats are a *ſo and ſo* crop. Take the crops altogether, they may be eſtimated much above thoſe we have reaped in the two preceding years; yet prices remain high. Indeed, I don't expect things to be otherwiſe, till the markets are ſtocked, and the granaries full. Speculation, of courſe, is the order of the day; and farmers, who at one time looked ſcarcely farther than the market before them, now appear as anxious for intelligence as the moſt induſtrious politicians. This, you will ſay, is ſomething like ſpeculation. Perhaps it is; but I will be bold to ſay, it is as fair as any ſpeculation can be. The farmer has as much right to ſpeculate, as the manufacturer, or the merchant. Each carries on trade, though in different articles; and all have an equal right to make the moſt of their commodities. I won't ſay that free bottoms make free trade; but free ſubjects *muſt* have free trade. I know no method to reduce prices, but increaſing the growth of grain and herbage by every poſſible mean. Before ſome meaſures of this kind are adopted, we need not expect that the neceſſaries of life are to be plentiful and cheap.

I have juſt heard from Weymouth market. French pigs alive, lank, long, half-ſtarved animals, were expoſed to ſale, and eight pounds and eight guineas aſked for them; alſo butter, quite freſh, that is, without any ſalt in it, bought in quantities at 10½d. per lib. The buyers take it home, remake it with a *quantum ſufficit* of ſalt, and ſell it again for 13d. This is not ſpeculation; for the buyers give it with open eyes.

I ſet out on my late tour, not as a citizen of the world, but as an Engliſhman, endeavouring to leave local prejudices behind me. Highly gratified was I with the agriculture of the North; I mean, of the counties from Newcaſtle to Perth; for I had more than a ſight of them, having ſpent ſeveral weeks among real practical farmers, and enjoyed great ſatisfaction at obſerving the high order in which their fields were kept. I am now convinced that *rent* has little to do with the farmer's proſperity; but that induſtry, ingenuity, economy, and attention, are every thing. Theſe, joined to the cheap living, ſlow, but ſteady labour of the lower ranks, as

well as an abundance of artificial manure, and the excellent inſtruments generally uſed, are the true cauſes of rural proſperity in thoſe diſtricts I lately viſited.'

Letter from an Engliſh Gentleman lately ſettled in Ireland, December 28th, 1801.

'This is naturally a fine country, containing a large portion of excellent ſoil, much of it of an uſeful kind, and well adapted to every branch of graſs huſbandry; but I am ſorry to ſay, that theſe advantages are not duly attended to, great room remaining for improvements of every kind. The better ſort of people are well diſpoſed to introduce improvements, but the other claſſes are ignorant; and, in fact, neither able nor willing to promote any material change in the preſent rural ſyſtem. The ground, generally ſpeaking, is imperfectly cultivated; and as for the grazing huſbandry, it will not bear a compariſon with the management I was uſed to in England. One principal cauſe why bad farming is ſo general, and the tenantry ſo poor, ariſes from the continuance of the ancient cuſtom of ſetting land, to a great extent, to a claſs of people called *middlemen*, who, like farmers of taxes, ſqueeze the laſt farthing from thoſe unhappy creatures who are unfortunately placed below them. They are rich themſelves; and, therefore, under local circumſtances, are convenient inſtruments, in many reſpects, to landed proprietors; but, in their hands, it is morally impoſſible that any beneficial improvement can be made upon the land. It is their object, to make as much of it as they can; while nothing upon their part is performed, except the ſimple taſk of ſubſetting. An eſtate, by them, is parcelled out at an advanced rent, among a number of wretches, called *cottars;* and ſure I am, to contemplate their caſe, would furniſh an effectual antidote to the pernicious ſchemes often ſubmitted to the public, by, perhaps, well deſigning men, for providing land to the lower ranks, under the idea of bettering their condition.

We are doing what we can to improve the breed of cattle in this county, having procured an excellent bull from England, which we give the uſe of to the neighbouring gentlemen. With the like view, we have imported a boar, of the beſt kind; and it is to be hoped, the great original expence will be amply repaid by the after profits, independent of the public benefit thereby gained. You may like to hear the ſtate of our markets. Wheat ſells from 30s. to 37s. per 20 ſtone of 14 lib. each; barley, 21s. to 28s. per 16 ſtone; oats, 12s. to 14s. per 14 ſtone. Beef, from 4d. to 5½d.; mutton, 6d. to 8d.; pork, 6½d. per lib.; all avoirdupois weight.'

Letter from a Gentleman in the county of Stafford, January 13, 1802.

'Our different grain crops have turned out well, fully one third better than laſt year, and markets of courſe are greatly reduced. Potatoes

Potatoes proved ſo productive, that I have ſold ſeveral waggon loads from 15d. to 18d. per buſhel, of 9½ gallons. Turnips were excellent; but I am apprehenſive, the ſevere weather, for two months back, will have injured the major part of them. The froſt came on ſo ſuddenly, that I was prevented from getting them up as cuſtomary; and they are now covered with a deep ſnow, which affords ſome chance that they may be preſerved.

'With regard to the price of butcher meat, beef and mutton is 8d. per lib., and pigs for ſtores 9d. I make no doubt but you have read the account of the Smithfield prize cattle. My opinion on that affair, is, that, inſtead of lowering prices, it tends to make an advance. I am no advocate for feeding either cattle or ſheep, in the uncommon way done by theſe prize-ſeekers; for it is not only injurious to the public, but a great loſs to the conſumer. Several of my Dorſet ewes have dropt their lambs already, which are hearty and thriving, ſtanding this ſevere weather well. Early in March, I hope to ſell them at a guinea and a half. Our Leiceſter ewes do not lamb ſooner than the end of March, or firſt of April. This weather makes great havock with our hay ricks; all my flocks and herds are fed morning and night, which is an expenſive buſineſs.'

Northumberland Quarterly Report:

THE good weather in the end of October and beginning of November, permitted the wheat ſeed to be favourably finiſhed; but as none of the late ſown fields had appeared above ground, when the froſt commenced, it is apprehended that conſiderable injury will be ſuſtained, eſpecially as the ground was uncovered with ſnow for ſeveral weeks. Latterly, much ſnow has fallen, which is a fortunate circumſtance for Winter crops of every kind.

The hill farmers have been greatly incommoded by the length and ſeverity of the ſtorm; the partial thaws, being ſucceeded by froſt, converted the ſurface to a body of ice, which the ſheep were unable to penetrate. This has occaſioned large flocks to be driven to the lower diſtricts, and will cauſe an advance upon hay and other articles.

In this diſtrict, every farmer wiſhes to get as much land ploughed before Winter as poſſible, both what is intended for fallows, and for Spring crop; but the froſt, ſetting in ſo early as the 20th November, prevented this neceſſary operation being executed to any great extent. Perhaps not above one half of the ground has got the firſt furrow, which will occaſion a buſy time when freſh weather returns. The melioration by froſt on ſtrong ſoils, and thoſe ploughed from graſs, will, in a great meaſure, be loſt.

Turnips prove an abundant crop, and prices are low: they have not hitherto been ſo much injured by the ſevere weather, as was dreaded. Wheat does not yield well in the barn; and barley is coarſe in quality.

The prices of ſtock have been high all this quarter, and are expected to get up, as there ſeems a general ſcarcity, particularly of ſheep. This ſcarcity has brought a number of half-fed animals to market, and cauſes a great difference in the prices per ſtone. Beef, at preſent, is from 7s. to 8s. 6d. per ſtone of 14 lib. ſink; mutton, 8d. or 9d. per lib. ſink; pork, 7s. 6d. per ſtone.—*January* 14.

Letter from a Farmer in Wales, January 15.

'The late ſown wheats were juſt brairding when the froſt ſet in; and, as there has been little ſnow to ſhelter them, I fear much damage will be received in expoſed ſituations. The alarm, which ſeized the cattle-dealers in the beginning of October, was of ſhort duration; for, in the ſpace of three weeks, the demand became briſker than ever. At Nicholas fair (the laſt in this diſtrict for the ſeaſon) every kind of ſtore cattle and ſheep ſold at exorbitant prices. Young heifers, which, ſeven years ago, would not have drawn above 70s., went off at ten guineas and upwards; and wedder ſheep, which will not weigh above 16 lib. or 18 lib. per quarter when fat, ſold at 38s. or 40s. Many farmers are therefore giving their turnips to young ſtock, rather than hazard making purchaſes upon ſuch terms. Store pigs are equally high, and many have this ſeaſon been fed upon acorns and potatoes. Prices of the dead market: Pork, 8½d. and 9d. per lib. by the carcaſe; beef and mutton, 6d. to 9d.; veal, 10d.; butter, 1s.; cheeſe, 6d. to 8d.; all avoirdupois weight.

The value of labour, in this diſtrict, has of late greatly increaſed; and, from the numerous works going forward, it is likely that wages will not be reduced, whatever is the rate of proviſions. We have plenty of fodder this ſeaſon, which is a comfortable affair in ſuch a ſevere Winter.'

Letter from Hull, January 14.

'From the inland navigations being ſtopped by the ſevere froſt, little buſineſs in grain was done at our laſt market. Prices were: Wheat, 68s. to 72s.; barley, 38s. to 42s.; oats, 18s. to 23s.; beans, 35s.; all per quarter of 8 buſhels Wincheſter. Only one ſample of foreign wheat was preſented, viz. from Ruſſia, which, being very inferior, was purchaſed by the millers at 52s.

The ſeverity of the ſtorm will cauſe great conſumption of fodder, and probably prove injurious to the wheats and turnips. Laſt year's crop of wheat yields poorly, much the ſame as that of 1799. Other grains give a fair return.

Our

Our butcher market is well ſupplied, but upon high terms. Ship beef ſells at 64s. per cwt.; retail market beef, 7d. to 9d.; mutton, 8d.; pork, 10d., and ſcarce to be got; butter, 15d.; apples, 2s. 6d. per peck; hay, 4l. 10s. to 5l.; lintſeed cakes, Engliſh, 12l. 12s., do. foreign, 10l. to 10l. 10s.; rape cake, Engliſh, 7l. 7s., all per ton; lintſeed, 60s. to 68s. per quarter; rape ſeed, 35l. to 37l. per laſt.'

Letter from a Farmer in Yorkſhire, January 18.

'The weather has been exceedingly variable for two months paſt, freezing and thawing alternately, till the 6th inſtant: ſince that time, there has been a continued froſt, accompanied with ſnow, which will ſhelter our turnips. We have ſuch an abundant crop of that root, that ſtock cannot be procured to conſume it. Butcher markets remain high, notwithſtanding the Peace; beef is worth 8s. to 9s. per ſtone, ſink; mutton 9d. to 10d. per lib. do. Lean ſtock higher than ever remembered, owing in a great meaſure to the vaſt quantity of Winter food. Corn markets have been pretty ſteady: They now look up for wheat; and it is the opinion of the beſt informed people, that, in wheat, there will be no fall. The crop was great; but the conſumption equals it. Harveſt was early, and the old ſtock exhauſted; conſequently, ſales were earlier made than cuſtomary.'

Yorkſhire Quarterly Report.

The crops of laſt year have turned out moſt exuberantly, both in point of quantity and quality. The price of grain has, accordingly, experienced a conſiderable reduction. The beſt wheat is at 9s.; barley, 6s.; oats, 3s.; and beans, 5s., per Wincheſter buſhel.

Before the ſevere froſt and ſnow, the growing wheats looked rather poorly, particularly on ſtrong level ſoils. They were rather late ſown, and may perhaps quickly recover upon the return of milder weather. Leſs ground than uſual has been appropriated to this grain; yet, in a time of peace, importation will probably moſt amply ſupply any deficiency that may occur. The froſt has prevented much ploughing, and other Winter field labour.

Turnips are perhaps the moſt abundant crop ever known. Sheep cannot be had to eat them; and cattle, in general, are extremely ſcarce and dear. Scarcely any money can be obtained for this root, to be eaten with ſheep; and for drawing off for cattle, the beſt are now ſelling at five guineas per acre; which mode, can ſcarcely fail to be a great loſs and injury to the ſucceeding crops in the rotation. Hay is about four guineas per ton. Potatoes have proved uncommonly productive, and of excellent quality: they are ſelling at the low price of 1s. per buſhel. Hops are plenty, and cheap. Of apples, we have a moderate ſupply.

Fat

Fat cattle, ſince Martinmas laſt, have been held at exorbitant prices, and in all probability will be ſtill dearer. Many had indulged an expectation, that *peace* would neceſſarily produce a fall in this important article; not ſufficiently reflecting, that an exhauſted ſtock of this ſort could not be repleniſhed all at once. Poſſibly ſome years may elapſe before that is effected, ſo as to reduce the price of meat to a moderate ratio. Lean live ſtock is ſuppoſed to be twenty *per cent.* higher than at any former period in this iſland. —*January* 18.

Letter from London, January 18.

'From the beſt information that can be procured from the farmers who attend at Marklane, the huſbandry of the counties near London is, in general, forward for the ſeaſon, and the wheats are looking well. We have had a very ſevere froſt, which commenced about the middle of laſt month, and, excepting a few days of ſoft weather at Chriſtmas, has continued to the day before yeſterday; we have now a gentle thaw; and the navigation, which had been ſtopped for the latter part of the week, is open again.

There is a good ſupply at market to-day; and prices of grain, in general, excepting wheat, rather lower. Many of the coaſting veſſels, with corn, that have been in the river ſince the commencement of the froſt, now wiſhing to get their cargoes out, may have had ſome influence on the prices. It is the opinion of people beſt informed, that there will be little or no alteration in the prices of wheat for three months to come. Many of the ſmall farmers in Eſſex have already ſold all their wheat; and the great farmers, who have capital ſufficient, ſeem not inclined to bring any to market at preſent, or but very ſparingly. From late accounts of the prices of grain on the Continent, it appears doubtful whether we can reckon upon any importation to affect our market here; at any rate, it muſt be the end of April, or beginning of May, before a quantity can arrive, if they can then ſpare us any. The barleys of this year are in general fine; very few ordinary ſamples have been produced at Marklane for two months paſt. The price, which had advanced previous to, has rather declined ſince it was determined to allow the diſtillers to work; moſt of the large diſtillers having laid in ſtocks before.

State of the Markets, Monday January 18th.

Foreign wheat	50s. to 60s.	All *p.* quarter.
Good Engliſh do.	80s. to 87s.	
Oats	23s. to 30s.	
Barley	36s. to 44s.	
Beans	34s to 38s.	
Hog peas	36s to 39s.	
Malt	50s. to 54s.	

Red

Red clover, good -	60s. to 95s. *p.* cwt.
White do. - -	90s. to 120s. do.
Trefoil - -	36s. to 50s. do.
Rib-graſs - -	26s. to 34s.
Burnet - -	15d. *p.* lib.
Rye-graſs - -	30s. to 36s. *p.* quarter.
Parſley - -	14s. *p.* buſhel.
Rape-ſeed - -	80s. *p.* quarter.

Literary Intelligence.

The Agricultural Survey of Tweedale, by the Reverend Mr Findlater *at Newlands*, is preparing for the preſs, and will likely be publiſhed in the courſe of the enſuing Summer. Favoured with a peruſal of the manuſcript, (extracts from which were given in ſome of our preceding Numbers), we are enabled to ſtate, that the huſbandry of the diſtrict is therein not only diſtinctly detailed, but alſo much ingenious information communicated, reſpecting various ſubjects of political economy connected with agriculture. The author reaſons much in Adam Smith's way; indeed, more ſo than any other writer of the preſent age, and his principles are in uniſon with thoſe maintained by that celebrated philoſopher. The work is to be publiſhed by ſubſcription; and, we truſt, will experience that ſhare of public favour which it eminently deſerves.

We are extremely happy to lay the following paper, from the Society of Arts, Manufactures, and Commerce, before our readers. The perſevering endeavours of that truly patriotic Society, entitle them to the higheſt praiſe. They have already done much good to the trade and agriculture of Britain; and it is to be hoped, that the encouragement offered for the culture of hemp, in this northern part of the iſland, will not be neglected. If we might venture to offer a remark to the conſideration of the Society, it would be, that the quantity to be cultivated is too extenſive for the ſcale of huſbandry generally practiſed in the diſtricts to which it refers. This may be amended afterwards.

Society for the encouragement of Arts, Manufactures, and Commerce. Adelphi, London, January 14th 1802.

The Society for the encouragement of Arts, Manufactures, and Commerce, wiſhing to encourage the growth of hemp, for the uſe of the Navy, in certain parts of Scotland, comprehending the whole county of Argyle, that part of Perthſhire ſituated to the north of the river Tay, and weſt of the military road, (See Ainſlie's Map of

of Scotland), leading from Logierait to the county of Inverneſs, and ſuch other parts of Scotland as lye north of Inverneſs-ſhire, offers to the perſon who ſhall ſow with hemp, in drills at leaſt 18 inches aſunder, the greateſt quantity of land, in the above mentioned diſtrict, not leſs than 50 acres ſtatute meaſure, in the year 1802, and ſhall, at the proper ſeaſon, cauſe to be plucked the Summer hemp, (or male hemp bearing no ſeed), and continue the Winter hemp (or female hemp bearing ſeed) on the ground, until the ſeed is ripe—the Gold Medal, or Fifty Guineas.

To the perſon who ſhall ſow with hemp, (in drills at leaſt 18 inches aſunder), the next greateſt quantity of land, in the ſame above mentioned diſtrict, not leſs than 25 acres ſtatute meaſure, in the year 1802, and ſhall, at the proper ſeaſon, cauſe the ſame to be plucked, as above mentioned—the Silver Medal, or Twenty-five Guineas.

Certificates of the number of acres, of the diſtance of the drills, of the plucking of the hemp, with a general account of the ſoil, cultivation, and produce, to be delivered to the Society, along with 14 lib. of the hemp, and 2 quarts of the ſeed, on or before the ſecond Tueſday in January 1803, addreſſed to their Secretary, Mr Charles Taylor, at the Adelphi, London.

NOTES TO CORRESPONDENTS.

The earlieſt opportunity will be taken to preſent our readers with an intelligent and valuable paper, '*Concerning the Law of Scotland, with regard to Dung and Straw.*' The author will pleaſe accept our moſt grateful acknowledgements.

A letter from '*A Northumberland Farmer,*' dated 'November 30. 1801,' is under conſideration. We will be obliged to this gentleman, if he will favour the publiſher with his addreſs, as one of the conductors wiſhes to correſpond with him reſpecting ſome of his late communications.

The '*Review of Suffolk Survey*' is poſtponed to next Number.

The communication from '*A Galloway Farmer*' ſhall meet with attention.

We return our beſt thanks to the author of the paper reſpecting the '*Embankment at Netherton of Grange.*' Communications concerning improvements in practical huſbandry, will always meet with a favourable reception from the conductor of this department.

No. X. will be publiſhed on Monday, 2d May.

Erratum.—P. 67. 13 lines from bottom, for *will be*, read, will *not* be.
In paper '*On ſubſetting Farms,*' No. VIII. p. 379.
For *dilectus perſonæ*, read, *delectus perſonæ*, as often as it occurs.